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ABSTRACT

The outcomes of advanced neonatal nurse practitioner (ANNP) programs in the United Kingdom were examined. The different programs of education currently available for nurses wishing to become ANNPs were compared, and the outcomes of ANNP programs, as demonstrated in the levels of performance of practitioners undertaking different programs, were evaluated. Parents' perceptions of the ANNP's role were explored, and the career intentions and attrition rates of those completing or undertaking specific ANNP programs were mapped. Data were collected through the following activities: analysis of documentary material and information for eight ANNP programs; self-completion questionnaires completed by 297 NNPs, NNP students, midwifery managers, and clinicians; semi-structured interviews with 20 NNPs and 12 parents; diary checklists completed by 68 NNPs and 25 senior house officers; and observations of 30 NNPs. The programs reviewed differed significantly from one another in the following respects: academic levels, qualifications, assessment strategies, and goals in terms of clinical practice. Nearly half the students stated that their educational programs had not adequately linked clinical practice with theory. The study established that comparable standards, validation documentation, and core curricula must

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be developed for NNP programs throughout the United Kingdom. (Contains 79 tables/figures and 71 references.) (MN)

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EVALUATING THE OUTCOMES OF ADVANCED NEONATAL NURSE PRACTITIONER PROGRAMMES

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September 1999

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EVALUATING THE OUTCOMES OF ADVANCED NEONATAL NURSE PRACTITIONER PROGRAMMES

PREFACE

The Board is pleased to publish the report which extended earlier research within this area of education and practice development. The two-year study used a range of methods to explore and evaluate ways in which the neonatal nurse practitioner role has developed in relation to other professional groups. The study provided evidence that the role is accepted and valued.

Through a variety of means the Board ensures that education for practice continues to be relevant both professionally and academically. Research based evidence provides a further important dimension of the development of policy. The findings emerging from this report and the implications of these, will be considered carefully in the context of changes to existing policy.

The findings will be of significance to nursing and medical practitioners, parents, service managers, education providers and commissioners. They are of particular interest in the context of opportunities to develop practice through continuing professional education and are relevant to all health care professions.

Professor Ron De Witt
Chairman of the Board

Professor Jeff Thompson
Chairman of Research and Development
at the English National Board

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Chapter 1 *Introduction*

1.1 Introduction

The goal of providing cost-effective quality care, the scope of nursing practice, and the need to address problems associated with medical education and staffing are issues in the wider debate about nursing and medical roles and the nature of educational programmes (United Kingdom Central Council, 1992; Department of Health, 1993; United Kingdom Central Council, 1994; Greenhalge, 1994; Audit Commission, 1995; Naughton and Nolan, 1998; United Kingdom Central Council, 1998).

More specifically, the introduction of the advanced neonatal nurse practitioner (ANNP*) role in the United Kingdom has been the focus of much interest and concern (Hale, Boxall and Hunt, 1987; British Association of Perinatal Medicine, 1996; Clark and Bibby, 1996; Doherty, 1996; Allan, 1997; Winterbottom, Marlow, Rymill and Colebeck, 1997). The NNP role, it has been suggested, should encompass explicit skills underpinned by a sound knowledge base and a nursing perspective (Heenan, 1996; Maguire, Carr and Beal, 1995; Pinelli and Paes, 1995). In practice this relatively new development has enabled neonatal nurses who wish to do so, to take a leading role in the care of the compromised newborn baby.

In 1996 the English National Board for Nursing, Midwifery and Health Visiting (ENB) commissioned this research project to evaluate the outcomes of approved ENB Advanced Neonatal Nurse Practitioner (A19) programmes. The findings of the study are expected to have implications for all those associated with the development, namely educational institutions, NHS trust managers, neonatal unit staff, other health care professionals and parents.

1.2 Quality issues in education and care

The concept of quality is a fundamental within the spheres of education and health care (NHS Executive, 1997). In assessing teaching quality and in auditing care similar principles are used in the evaluative process. A critical and analytic approach that is evidence-based is required in which qualitative and quantitative data are used to complete the feedback loop that will facilitate appropriate change and development.

The recent introduction of the NNP role is likely to have an impact on the quality of both the organisation and delivery of neonatal care. As a consequence, the scope of the education and training that underpins the new role is of critical importance in supporting and facilitating this relatively new development. With the operationalisation of several ENB A19 courses there has been an urgent need to monitor and evaluate educational process and outcomes.

* *Inconsistent use of job titles and the debate about the use of the terms "advanced" and "specialist" has led us to use the term most commonly employed, that is, "neonatal nurse practitioner". Thus throughout the report the abbreviated 'NNP' is used, with the exceptions of the ENB commissioned project aims and the use of quotations by NNPs themselves. No judgement about the level of practice is implied.*

The ultimate aim must be directed at setting and maintaining standards in practice and the education that will enable institutions and individuals, including parents to have confidence in the training, skills and abilities of the nurses involved in this new role (ENB, 1997).

With the introduction of the government white paper (NHS Executive, 1997) and more detailed guidance (NHS Executive, 1998) the pressures for change have been made explicit, with the aims of bringing greater efficiency, driving up quality and reducing variability in health care service delivery. The provision of a high quality service may be brought about by greater clinical and financial responsibility and accountability at local level as clinical governance becomes mandatory and assumes the same level of importance as financial governance. The setting up of standards in the form of National Service Frameworks and maintenance of performance in relation to service delivery and clinical governance by new statutory bodies will become increasingly important features in the "modern" health care environment.

1.3 The importance of evaluation

Concern has been expressed regarding the diverse nature of the ENB A19 programmes available in the United Kingdom and the absence of a standard national curriculum and associated core skills (British Association of Perinatal Medicine, 1996; Doherty, 1996). The British Association of Perinatal Medicine (BAPM) has stated that "The precise role that may develop for Advanced Neonatal Nurse Practitioners is unclear, as is their integration into neonatal intensive care" (BAPM, 1996 p7). Concerns have also been raised (Doherty, 1996) that these educational programmes are likely to turn nurses into technicians, a concern that has been expressed by others (Chiswick and Roberton, 1987). Whilst it has also been argued that the NNP role is too distant from that of neonatal nurses (Ashworth, Carton, Dady, Faulkener and Marshall, 1998). Others have refuted this (Winterbottom, Marlow, Rymill and Colbeck, 1997) and Casselden (1995) has argued that the NNPs do utilise their nursing knowledge and expertise in their practice.

Following the operationalisation of four ENB A19 programmes in England, to date 156 neonatal nurses have graduated, the majority of whom are practising. With this expansion and diversification, the need for an independent and objective evaluation of the role, projected career paths and educational programmes of preparation became a priority for the English National Board for Nursing, Midwifery and Health Visiting funded research.

1.4 Aims of the project

The agreed aims of the research were as listed below:

- To undertake a comparative analysis of the different programmes of education currently available for nurses wishing to become neonatal nurse practitioners (ENB A19). These programmes will be considered in the context of a range of other courses that included 'enhanced neonatal care', some of which are recognised by the ENB.

- To evaluate outcomes as demonstrated in the levels of performance of practitioners undertaking different programmes

- To explore the parents' perceptions of the ANNP role
- To map the career intentions and attrition rates of those completing or undertaking the ENB A19 or similar programmes
- To map the emerging relationship in practice between the specialist practitioner and the ANNP role

Chapter 2 Background to the study

2.1 The history of nurse practitioners

The role of nurse practitioner (NP) has existed in the United States since the 1960s (Clancy and Maguire 1995) and was initially introduced into the setting of primary care (Haddock, 1997). A key feature of the role was the assimilation of both a medical and nursing perspective. In the United Kingdom nurse practitioners first emerged in the area of primary care and have continued to develop their skills in a wide range of health care settings (Stilwell, Greenfield, Drury and Hull 1987; Read and George 1994; Dowling, Barrett and West 1995; Touche Ross, 1994; Read 1998). In primary care the main aim of the role has been to facilitate the provision of readily available, all-inclusive health care (South East Thames Regional Health Authority, 1992). As in the United States, the impetus for the role has mainly come from a shortfall in medical staffing (Fawcett-Hensey, 1991) and changes in medical education, rather than simply as a professional development in nursing (Greenhalge, 1994 and Read and Graves, 1994).

2.2 Development of the neonatal nurse practitioner role

A study by Johnson (Johnson, Jung and Boros, 1979) of nurse practitioners is acknowledged as having provided the foundation for the development and subsequent evolution of neonatal nurse practitioner (NNP) training (Hall, Smith, Jackson, Perks, and Walton, 1992). As a result primarily of Johnson's work, similar NNP courses began to be developed within the United States during the 1970s and 1980s. NNP training during this time was usually hospital-based and teaching, generally undertaken by neonatologists concentrated on the attainment of clinical skills (Clancy and Maguire, 1995; Farah, Bieda and Shiao, 1996).

Certification of NNPs in the United States commenced in 1983 (Farah, Bieda and Shiao, 1996) and since that time 1,737 nurses have passed the NNP exam (Ruth-Sanchez, Lee and Bosque, 1996). Aspects of the NNP role may vary in accordance with State Practice Acts, institutional requirements and credentialing, personal strengths, choice of the NNP and educational preparation.

Following the model in the United States, the NNP role became one that was adopted in neonatal units in a number of other countries during the 1980s, with the United Kingdom being one of those that did not move in this direction at that time (Hall, Smith, Jackson, Perks, and Walton, 1992). The development of the NNP role in Canada is interesting as it has been successful, but with considerably fewer numbers than in the United States (Patterson, Pinelli and Markham 1997); currently there are only an estimated fifty NNPs employed in the country (Glenn, Mills, Harris, Bisnaire, Pinelli, Love, Giallonardo, Schreiber and Patterson, 1997). Despite this small number, the NNP role has been extensively evaluated (Mitchell-DiCenso, Guyatt, Marrin, Goeree, Willan, Southwell, Hewson, Paes, Rosenbaum, Hunsberger and Baumann, 1996). It has been suggested that whilst the NNP role in Canada is clinically-orientated, more emphasis is placed on practice development and non-clinical activities, such as teaching and research, than in the United States (Harris and Redshaw, 1994).

The first NNP programme commenced in New Zealand in 1992. Factors that led to the development of the role appear to be similar to those in North America whereby experienced neonatal nurses wanted to advance their career opportunities whilst there was also a shortage of junior and middle grade medical cover (Overington, 1996). Although by March 1998 there were 19 qualified NNPs practising in New Zealand, there has not as yet been any published evaluation of the role.

The equivalent NNP role in Australia is that of the neonatal nurse clinician, a role that has only recently been introduced in 1997 (Brazil, 1999a). The introduction of the role aimed to improve patient care, provide a clinical career structure for neonatal nurses and cover changes in medical staffing arrangements (Brazil, 1999b). Currently only two neonatal nurse clinicians are working in Australia (Newcastle, New South Wales). However, whilst it is suggested that many barriers to the role exist (Brazil, 1999b), educational institutions and professional organisations in other states in Australia are currently planning the introduction of neonatal nurse clinician training.

Establishment of the NNP role in North America provoked nurses and clinicians in the United Kingdom to consider the potential value of the role in British neonatal units (Chiswick and Roberton, 1987; Hale, Boxall and Hunt, 1987). Some neonatal nurses and clinicians believed that the NNP role would raise as many problems as it would solve; in particular it was argued that the introduction of the NNP role would ultimately jeopardise the delivery of nursing care (Hale, Boxall and Hunt, 1987). A study undertaken by the Neonatal Nurses Association (NNA) highlighted the reservations that British neonatal nurses and clinicians had regarding the role (Boxall, 1987). However, others felt that developing the role of the neonatal nurse would improve the provision of care, enhance the status of neonatal nurses and improve the training and support of junior doctors (Chiswick and Roberton, 1987).

The first Advanced Neonatal Nurse Practitioner course (ENB A19) in England was run by the University of Southampton in 1992. Since that time a further three ENB A19 courses have been approved and were implemented in 1995 at the University of Newcastle in Northumbria, Homerton School of Health Studies, Cambridge and Birmingham University. Several other programmes have been approved but not run and the changing debate with regard to specialist and advanced practice has affected the way that other educationalists have developed similar or related programmes.

2.3 The context of neonatal care

The speciality of neonatology in the United Kingdom has undergone extensive development since the first neonatal units were established. As the speciality has progressed, the demands placed upon it have increased. In particular the evolution of medical techniques has brought the need for more specialised equipment, staff training and designated specialist neonatal units. Developments in technology have played a vital role in improving the diagnosis, monitoring, treatment and nursing care of sick and premature babies, and as such neonatal care can be regarded a highly technical speciality (Carter and Watson, 1987). Associated changes in the dependency of the infants being cared for in the neonatal unit have changed the nature of the skills and knowledge required as increasingly immature, extremely low-birthweight (ELBW), compromised babies have the potential to survive (BAPM, 1996).

Changing dependency and technology have required nurses and medical staff working in the speciality to continually develop their expertise in caring for the sick and preterm baby and has resulted in an evolution of the neonatal nurses' role with consequential increases in responsibility (Ashworth, Carton, Dady, Faulkner and Marshall, 1998). To date, much of the theoretical knowledge and clinical skills required of neonatal nurses has been accommodated through the post-registration programmes which provide specific training in the nursing care of the baby requiring special, high dependency and intensive care. Whilst *in-house* nurse training for nurses in skills such as intravenous cannulation and blood gas sampling has been set up in some neonatal units, this has not been formalised as a national initiative (Hall, Smith, Jackson, Perks and Walton, 1992). However, a survey in one English health region, published in 1995, indicated that many neonatal nurses and consultants thought that experienced nurses should undertake additional activities as part of their clinical practice (Barrett, 1995). The particular activities that were identified by more than 70% of neonatal nurses and consultants included intravenous cannulation, emergency intubation, venepuncture, use of blood gas analyser and blood sampling via an arterial line (Barrett, 1995). Evidence from a national study suggested that some neonatal nurses were already undertaking these activities, mostly without formal training (Redshaw, Harris and Ingram, 1996).

2.4 Factors influencing the development of the NNP role in the United Kingdom

Work carried out by Masterson on behalf of the UKCC, identified that the evolution of nursing practice, the increasing demands on local service provision and national policy targets, were impacting on the responsibilities of individuals working within the setting of health care and affecting traditional role boundaries (UKCC, 1997). One of the ways in which nurses have pursued the recognition of nursing as a profession has been by the expansion of the range of their practice through the attainment of increasingly higher levels of theoretical knowledge and the development of more complex clinical skills (King and Sagan 1989; Derrick, 1989). Many of these clinical activities were previously undertaken solely by their doctor colleagues (Harris and Redshaw, 1998). This is a situation that can be seen across a range of specialities, including community and critical care and high dependency settings (Last, Self, Kassab and Rajan, 1992; Briggs, 1991; Jones 1994; Read, Jones and Williams, 1992; Read and Graves, 1994; NHS Executive, 1996).

This development of nursing roles has taken place in the context of the recent implementation of many health care initiatives. The Working for Patients initiative (DOH, 1989) enabled trusts to decide their own staffing and skill mix procedures (Read, 1998). Whilst the National Health Service and Community Care Act 1990, led to the introduction of the internal market into the NHS and the demand for the efficient utilisation of health care professionals and more effective monitoring of patient outcomes (Castledine, 1993). The Health of the Nation policy targets (Department of Health, 1992) were intended to facilitate an improvement in the health of the population and advocated that nurses should play a key role in health promotion. In addition, the need to reduce junior doctor hours and workload (NHS Executive, 1991; DOH, 1993), whilst improving specialist medical training has also had an impact on the role of the nurse (Redshaw and Harris, 1995). Developments within the nursing profession such as the Scope of Professional Practice (United Kingdom Central Council, 1992) and the specialist and advanced practitioner frameworks (United Kingdom

Central Council, 1994) have also contributed to empowering nurses to further develop their roles in care and practice development.

Specific factors that determined the development of some of the ENB A19 courses include the decentralisation of neonatal care in some geographical areas, the requirement to reduce junior doctors' hours, the need to cover the shortfall of experienced junior doctors and middle grade cover within neonatal care and the need to provide experienced neonatal nurses with a career pathway that maintained patient contact (McDougall, 1994; Casselden,1995; Oliver and Allan, 1998).

2.5 Previous research

A study by Ruth-Sanchez, Lee and Bosque (1996), set out to describe the role of NNPs working in the United States. The total sample of 1,521 NNPs were surveyed about their practice, with a response rate of 47%. The majority of respondents (54%) identified that their main area of activity was in the provision of neonatal intensive care. The duration of the shifts that they worked varied, with 12 hour (27%) and 24 hour (21%) shifts being the most common. With regard to specific aspects of care, the largest proportion of NNP time was spent in direct patient care, writing notes, undertaking ward rounds, attending deliveries, performing procedures and communicating with parents. Only 14% of the respondents undertook out-patient care. A large proportion of the respondents (72%) recounted no involvement in research.

In the first randomised controlled trial of NNPs (Mitchell-DiCenso, Guyatt, Marrin, Goeree, Willan, Southwell, Hewson, Paes, Rosenbaum, Hunsberger and Baumann,1996), for one year (1991-2) babies admitted to a neonatal intensive care unit in Ontario were randomised to be cared for by either a team of NNPs or paediatric residents. Both teams were supervised by neonatologists. Outcome measures included mortality, length of stay, quality of care, parent satisfaction and the overall cost of care: the two teams of carers were found to be alike in the evaluation of their performance.

As the NNP role develops, comparisons of the quality and cost of care provided by NNPs and junior doctors become increasingly relevant (Bissinger, 1999). Some studies have demonstrated that nurse practitioners working in a range of settings provide competent, cost-effective care (Spisso, O'Callaghan, McKennan and Holcroft, 1990), however, there have been only limited comparisons of NNP and junior doctor roles in neonatal care. One such retrospective study has identified that NNPs do provide comparable care that is cost-effective (Schultz, Liptak and Fioravanti, 1994). Babies cared for in an eight cot, low dependency neonatal unit during January - June 1989 were compared with babies cared for within the same six month period during 1990. The care of the first group of babies was managed by junior doctors who were on a thirty day rotational schedule, whilst the care of the second group was managed by two NNPs. Accuracy of diagnosis, length of stay, health at discharge, hospital charges and re-admission rates were compared. Babies cared for by the NNP group had shorter and less expensive hospital stays (Schultz, Liptak and Fioravanti, 1994) . It is acknowledged however, that differences between the two groups of babies rather than the actions of the NNPs and junior doctors may have accounted for differences in length of stay and hospital charges. Replication of this study in a neonatal intensive care unit with a larger

sample or a randomised controlled trial would provide further evidence regarding the effectiveness of the NNP role.

The first ENB A19 programme, the practitioners graduating from it, the clinicians involved and the junior doctors and nurses working alongside the NNPs were the focus of the initial evaluative study carried out in the United Kingdom, commissioned by the ENB (Redshaw and Harris, 1995). Data from the study of 27 NNPs and NNP students from 17 neonatal units demonstrated the intensive nature of the course, how the students experienced the new form of education and training and the changing nature of the working relationships and boundaries with other professional groups working alongside them (Redshaw and Harris, 1995). However, as a study of one year's duration only, carried out at an early stage in the development, there were limits on the research questions that could be asked and aspects that could be investigated.

The introduction of neonatal nurse practitioners and their increasing numbers are likely to affect both the organisation and quality of care provided for the client group. The nature of the education and training are thus of critical importance in facilitating or discouraging changes in provision and practice. In the acute specialty work context into which these new professionals return and migrate, the skill mix issue is very much alive and questions about substitution, sharing and transferring skills are being discussed in an active way. The present study sought to build on the previous research (Redshaw and Harris, 1995) and to extend the scope of the issues addressed, focusing on both education and practice, using a diversity of participants and methods detailed in the chapter which follows.

Chapter 3 *Methods*

3.1 Introduction

A range of methods were used in addressing the aims of the research project and a wide spectrum of subject groups. A similar methodology and variety of participants were used in previous research in neonatal care (Redshaw, Harris and Ingram, 1996) and in the previous exploratory study of advanced neonatal nurse practitioners (Redshaw and Harris, 1995). The aim was to build on this experience and expertise and to take a broader and longer term view of the programmes developed and of the role in practice.

3.2 Data Collection

3.2.1 Programmes

A comparative analysis was undertaken of the documentary material and information available for the four active ENB A19 programmes and four other neonatal nursing programmes which overlap in content and rationale with the ENB A19. A range of course material, most notably: submission documents, handbooks, course organisational information and timetables, assessment protocols and forms, module outlines and learning outcomes were utilised in this process. The material was obtained on request from course leaders following visits to the educational institutions.

Four other courses were examined that were available for neonatal nurses wishing to undertake enhanced or expanded roles in neonatal care: the ENB A99, ENB R23, ENB SA19 and a neonatal care module validated by the University of East Anglia. The programme documentation was critically examined in a similar way to that employed with the ENBA19 programme material.

3.2.2 Participants

The participant groups, numbers of participating individuals and methods of study are shown in Table 3.1. To enable a rich and detailed analysis a variety of methods were used to collect data that include, self completion questionnaires, semi-structured interviews, diary checklists and observations. The data were collected with the aim of employing a triangulation of methods in order to gain a full picture of how the role has been put into practice and to reflect the diverse accounts of individuals. The variety of methods employed to collect data from the different groups enabled the researchers to explore issues and variation in a way that would not otherwise have been possible.

Where appropriate, specific questions were standardised to allow direct comparison between groups. The responses to open-ended questions were categorised thematically, but in the main their contribution to the report has been in illustrating specific points and in providing vivid illustrative evidence of the perspectives of the different respondents.

Participant Group	*Questionnaires*	*Interviews*	*Diary Checklists*	*Observation*
Neonatal Nurse Practitioners (NNPs)	64	20	68	30
NNP Students	123			
Midwifery Managers	53			
Clinicians	57			
SHOs			25	
Parents		12		

Table 3.1 Participant groups, participant numbers and methods used in the study

NNP Students: Self completion questionnaires that had been piloted and tested in the exploratory project on neonatal nurse practitioners (Redshaw and Harris, 1995) were administered at three different stages in the programme. This data collection took place during visits to the institutions when the programmes were ongoing and the researchers met the students together as a group. A group self-completion session, with members of the project team able to describe the project as a whole and to answer general points about the research, was thought to be the most appropriate way of collecting these data. This method of data collection also facilitated a high response rate. Data collection was timed for the start (first two-four weeks of the course) at the mid-point and at the end of the programme (represented by the letters S, M and E in Table 3.2). For those programmes already running when the project commenced a combined questionnaire (incorporating questions from start middle and end questionnaires) was employed (represented by the letter C in Table 3.2). When individual students were absent from the data collection sessions, the questionnaires were sent out by post.

Cohorts	*Site A*	*Site B*	*Site C*	*Site D*
1	*	*	C	C
2	*	C	S M E	S M E
3	*	S M E	S M E	
4	C	S M E		
5	C			
6	S M E			
7	S M E			

C - combined, S - start, M - middle, E - end.

** these cohorts did not participate in data collection in this study*

Table 3.2 Distribution of student questionnaires for each programme and cohort

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The questionnaire covered aspects of course organisation and content, supervision and assessment, changing clinical skills and practice and attitudes to neonatal nursing and their own changing role (Table 3.3). Similar structured and open-ended question formats were employed as those used in the previous exploratory project (Redshaw and Harris, 1995).

TOPICS COVERED
• general background, previous experience and training
• working in neonatal care
- issues - concerns
• nurse practitioner developments
• nursing practice
- activities undertaken - unit as a place to work - duties individual students feel should be part of role
• individual neonatal nurses
• the advanced neonatal nurse practitioner programme
- content - aspects of theory and practice - coping - practical issues
• aspects of being a full time student
• colleagues' responses to changing role

Table 3.3 NNP Student questionnaire content

This kind of comparable data collection was used to develop a broader data set than would otherwise have been possible, for it allowed information from different courses and years to be combined. By using the similar methods it was thus possible to make some comparisons between the educational experiences of students on different programmes.

Data were collected on 123 out of 129 (95%) possible neonatal nurse respondents undertaking the ENB A19 programmes of education distributed over the different courses and cohorts.

The NNP student data collection took place as shown in Table 3.2. As indicated in the table, questionnaires were administered to NNP students from 12 cohorts across four educational programmes. The total numbers of students from each programme from whom data were collected were: 60 from Site A, 31 from Site B, 18 from Site C and 14 from Site D. Students from previously completed programmes, namely the first three cohorts from Site A and the first one from Site B were not included in this part of the study.

Qualified NNPs : Diary checklists, self completion questionnaires and observations, piloted and tested in the exploratory project (Redshaw and Harris, 1995), were also employed in this study.

The *diary checklist* consists of summaries of work on ten consecutive shifts and for each shift information is recorded on work allocation, areas of activity and specific tasks, with room for additional relevant information concerning the shift or work organisation. Qualified practitioners were not sent checklists until at least six months after completion of their programme of education. A total of 62% were returned (68 out of 109), 64 of which provided information about a total of 630 shifts that were used in the analysis presented in the report. Non-respondents included qualified NNPs who were not practising and some of those who had participated in similar data collection in the exploratory study.

Information about the experience and views of qualified NNPs was collected in two ways. In order to achieve a breadth of data about the programmes of education and the attitudes of the qualified NNPs, the majority of qualified NNPs were sent a self-completion questionnaire. However, in order to be able to explore their perceptions in depth and to hear directly from NNPs themselves, interviews were undertaken with a smaller number. The questionnaire and interview schedule were designed in parallel and the content was largely similar.

Like the diary checklists the *questionnaire*, was also not sent out until at least six months after completion of the programme of education. Using a mixture of structured format and open ended questions, it focused on the changing practice base, relationships with other professional groups and their attitudes, the continuing education needs of the NNPs and perceptions of their own role, changes since becoming a practitioner, constraints and supports for the practitioner role, career plans and paths. A total of 61% were returned (65 out of 106) and the data presented are based on the returns from 61 NNPs. Four of those sent questionnaires returned them without completion and other respondents indicated they were not currently practising as NNPs and would prefer to participate at a later stage.

Interviews: As discussed above, in parallel with the NNP questionnaire, an interview schedule was developed, asking many of the same questions. This was used in interviewing a further 20 NNPs who had not been sent the questionnaire. A total of 20 NNPs (10 of whom were currently practising and 10 of whom were not) were contacted and interviewed. Using opportunistic sampling the interviewees were selected to represent a balance of those working in different parts of the country, in different types of unit and from different programmes.

These semi-structured interviews were found to be an effective way of obtaining rich and detailed data from a small number of respondents. This method of data collection allowed the respondents to express their thoughts and feelings and to raise other, sometimes local issues that they saw as relevant to their experience. It also allowed the interviewers to explore and clarify specific points. The topics included in the interview schedules for practising and non practising NNPs are presented in Table 3.4.

Practising	*Non-practising*
TOPICS	TOPICS
• current employment	• reasons for not practising
• current practice	• feelings about not practising
• programme and educational preparation	• comments from others - positive - negative
• professional development	• concerns about role - facilitators - barriers
• the role of the neonatal nurse practitioner	• the role of the neonatal nurse practitioner
• professional relationships	• professional relationships
• future plans - immediate - long term	• future plans - immediate - long term
• nurse practitioners in neonatal care - concerns - development	• nurse practitioners in neonatal care - concerns - development

Table 3.4 NNP interview schedule content

The *observations* were based on shifts in which a nurse researcher accompanied an NNP, logged activity and contacts, and recorded these within a structured time frame. These reflected areas of activity, involvement in clinical care, professional and caretaking relationships. At the time of initiating observational data collection the sample of NNPs observed was drawn from the total of 91 qualified and practising NNPs who had undertaken one of the four ENB A19 courses and were working in one of 55 hospitals.

The sample consisted of thirty NNPs working in a range of different kinds of neonatal unit in England and Scotland; there were no NNPs practising in neonatal units in Wales and it was not possible to shadow the NNPs working in Northern Ireland. The aim was to achieve a representative sample in terms of the course undertaken, the type of neonatal unit and geographical location. The NNPs were recruited to this part of the study via direct telephone contact, when the request was made to shadow whichever NNP was available on targeted dates. Only one NNP asked not to be included in this part of the study. Each was observed by the researcher who, as a qualified and experienced neonatal nurse was able to accompany them wherever required. Using a watch and clip-board, data were recorded within a five minute time framework using pre-determined categories for activities, types of personnel and

locations. The following NNPs were observed on early, late or day shifts: 8 in regional centres, 9 in subregional centres, 9 in district units and 4 in small district units. They ranged in age from 29-47 years, with a mean of 39 years. Most were employed at H grade. In total, the observational study accrued 263 hours and 35 minutes of data. The duration of the observed shifts worked by NNPs ranged from 5 hours 30 minutes to 13 hours 20 minutes (the mean duration was 8 hours 47minutes).

Junior Medical Staff: Using a diary checklist similar to that employed with the NNPs, the aim was to obtain comparable data from approximately 30 junior medical staff (also working shift systems) at a selected number of sites where there was senior medical staff support for this. A total of 25 diaries, containing data on 230 shifts were returned.

Clinicians: Questionnaires were sent to consultant neonatologists and paediatricians responsible for neonatal care and working in all units known to have neonatal nurses who were qualified NNPs. A total of 86% were returned (57 out of 66). These questionnaires focused on clinical practice, teaching and supervision in the clinical areas, limits or constraints on practice and attitudes towards the development in general (Table 3.5).

TOPICS
• medical and nursing staff numbers and rota systems
• current roles of junior medical staff and NNPs
• NNP current practice
• supervision and teaching of NNPs
• effect of NNP introduction on junior doctor training and hours
• other changes associated with introduction of NNP role

Table 3.5 Content of clinicians' questionnaire.

Midwifery Managers: A questionnaire was sent to all the heads of midwifery in trusts where qualified NNPs were working. The topics covered are listed in Table 3.6.

TOPICS
• Contact with NNPs
• NNP role in relation to delivery suite
• NNP involvement in teaching midwives
• Midwife preferences for working alongside colleagues
• Midwives with an expanded role

Table 3.6 Heads of Midwifery questionnaire.

These focused on midwifery contact with NNPs, NNP involvement in teaching midwives and other related aspects of perinatal care. A total of 82% of questionnaires were returned (54 out of 66), one of which was not useable.

Parents: Semi-structured interviews were carried out with a small number of parents (12) whose babies were shortly to be discharged home from two large regional neonatal units, each with practising NNPs. The interviews explored their perceptions of the unit, the NNP, her role and that of other staff in the context of the care of their baby and experience in the unit. This labour-intensive part of the study had been planned as one in which only small numbers of participants would be used at a limited number of sites (approximately 20 mothers or mothers and fathers together). However, difficulties associated with Local Research Ethical Committee (LREC) processing, requests for further information, minor adjustments to letters and unexpected discharges home affected this part of the data collection.

3.3 Data analysis

This was mainly descriptive and the numbers or proportions of the different groups responding in different ways are shown in tables or figures. Where appropriate a Chi Squared test was performed to check for significant differences between groups. Thus some probabilities (p values) are reported on differences between NNPs working in the different types of unit and from the different programmes of education. The categorisation of units, into regional, subregional and district units, was as used in previous research (Redshaw, Harris and Ingram, 1996), with the addition of dividing the district units into two categories, larger district units with intensive care cots and smaller district units being those in which intensive care is not routinely provided.

Chapter 4 Education for practice

4.1 Introduction

The aim was to use the recently established neonatal nurse practitioner programmes as an example of the kind of education employed to underpin nurse practitioner developments in clinical care. The shifting professional boundaries and innovative roles associated with the development of new posts (Read and Graves, 1994; Read, 1998; ENRiP, 1999) and the wider context of clinical governance, make an evaluation of the education and the role of the NNP in practice an appropriate target at this time. In focusing on issues associated with educational standards and quality assurance, similarities and differences between programmes are used to provide contrasts and to highlight salient issues (ENB, 1997).

This part of the project set out to compare the ways in which Advanced Neonatal Nurse Practitioner programmes (ENB A19) are structured and organised: the objectives were to examine the learning outcomes, content, teaching strategies and methods of assessment of the different programmes and to consider these in the context of the NNP role in practice.

In examining curricula and related course documents, there is an inherent problem in determining the degree of congruence between the intended and the transacted curriculum. While the documentation is evidence of the goals and intentions of the course planners and leaders, it is not always a direct representation of what takes place during the running of any programme. Devised and approved at specific points in time, modifications are commonly made within each programme as it runs. The documents also reflect a range of influences including external pressures beyond the institution. Frequently used in marketing educational courses, such curriculum documents may be responding to a variety of demands and needs. Thus the experiences of substantial numbers of students recorded at different stages or time points in the programmes (Chapter 5) and those of nurses qualified as NNPs from the different programmes (Chapter 6 and 7) need to be considered in conjunction with the information presented in this chapter.

4.2 Background

The first institution to submit an outline curriculum to the English National Board of Nursing, Midwifery and Health Visiting set up and ran the first Advanced Neonatal Nurse Practitioner Programme (ENB A19) in 1992. Since then other institutions have been approved by the Board to run the programme, three of which were fully operational at the time of data collection and all of which participated in the study. This chapter is designed to give an overview of the four educational programmes which will be referred to as Sites A, B, C and D. The programme information and data are presented using these site headings and other neonatal courses which have some common features are described similarly in sections 4.13 - 4.17.

Following a comparative analysis of the documents made available, key features of the design and structure of the four currently active Advanced Neonatal Nurse Practitioner

Programmes (ENB A19) are described and discussed in this chapter. The experience of students undertaking these programmes are considered in the following chapter (Chapter 5).

4.3 Cohorts and NNP student numbers

Details of the numbers of students on the different programmes are shown in Table 4.1.

Site A - The first ENB A19 programme took place in 1992. In total, seven cohorts have completed the course and an eighth is currently in progress.

Site B - The first ENB A19 programme ran in 1995 and to date four cohorts have completed the programme. A fifth cohort is due to complete in autumn 1999.

Site C - The first ENB A19 programme took place in 1995-1996 and in total three cohorts of students have completed. At the time of writing the report a fourth programme is in operation and is due to complete autumn 1999.

Site D - The Specialist Neonatal Nurse Practitioner programme first ran in 1995-1996 and was retrospectively approved as the ENB A19. In total two cohorts have completed the programme and a third is in progress.

PROGRAMME	*COMPLETED COHORTS*	*NUMBER QUALIFIED*	*CURRENT STUDENT NUMBERS*
Site A	7	82	9
Site B	4	44	11
Site C	3	16	5
Site D	2	14	4

Table 4.1 Numbers of cohorts, qualified students and current numbers undertaking ENB A19 programmes

The information in Table 4.1 shows that, as with many post-registration courses, the numbers of students and graduates are quite small. Up to April 1999 a total of 156 NNP students had successfully completed an ENB A19 programme.

4.4 Attainable qualifications

As illustrated in Table 4.2, each programme awards the ENB A19, however, there is variation in the academic level and other qualifications attained. For example, students undertaking the Site C programme, in addition to the ENB A19, are also awarded a Post Experience Diploma in Health Sciences and the ENB Higher Award. Site D students now attain the ENB A19 and a BA (Hons) Nursing. The Site B programme offers students the opportunity to study modules at level 3 or M1 (providing they meet the required criteria). If students opt to study at M1 level they can also attain a Post Graduate Diploma. Students undertaking the Site A programme are awarded 90 level 3 credits.

Programme	*CORE COMPONENTS*					*OPTIONAL COMPONENTS*			
	ENB A19	Level 3 &/or M1 credits	ENB Higher Award	BA	Post Graduate Diploma	ENB 405	ENB Higher Award	BSc	MSc
Site A	✓	✓						✓	
Site B	✓	✓			(✓)				
Site C	✓		✓		✓	✓			✓
Site D	✓			✓			✓		

Table 4.2 Academic level of ENB A19 programmes and range of qualifications obtained

Further options are available in three of the programmes. To qualify for the B.Sc. (Hons) in Neonatal Studies, students on the Site A programme must submit a dissertation. Site C provides the opportunity for the students to be awarded the ENB 405 (Special and Intensive Care of the Newborn), though the other programmes have this as a prerequisite (section 4.6). Furthermore, 6 M level modules are completed by those students opting for the Masters in Health Sciences. Students undertaking the Site D programme can, in addition, attain the ENB Higher Award if the required portfolio is completed.

4.5 Programme philosophies

The philosophy of each programme is underpinned by beliefs and values concerning the care of the newborn. Whilst similar themes are apparent, there seem to be some key differences in the way that these are expressed. The language used in the documentation is reflected in the descriptions below.

Site A - The programme's philosophy is to "*facilitate the continuous development of knowledgeable competent practitioners who adapt their practice to meet the varying health care needs of society*". The primary aim is to improve the standard and quality of care for neonates and their families by developing the skills, knowledge, experience and expertise of

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neonatal nurses. It is stated that clinical and theoretical teaching and assessment of students requires collaboration between members of the medical and nursing profession, in conjunction with the university lecturers. The specialist knowledge, experience and expertise of the above groups are acknowledged in preparing students for the NNP role.

Site B - The underlying beliefs and values of the programme encompass safe care of the neonate, parental involvement in care, the student's right to reflect upon practice in a supportive environment and the integration of theory with practice. This programme adopts an androgogical (adult) approach to student learning, the focus of which is the student's experiences in practice. It is stated that learning will be consolidated and developed with active encouragement to reflect in and on practice, both in the educational and clinical environment.

Site C - This programme's philosophy is based upon the concept of caring. The curriculum was developed in the context of professional and government health care policies and the importance of audit and evaluative research (understanding, participation and initiation) is emphasised. The underlying educational philosophy is conceptualised as an ideology of reconstructionism, whereby education is presented as a *"vehicle for growth"* and as such the individual develops meaning and control over their experiences.

Site D - The educational philosophy is not explicitly identified, however the fundamental principles of the NNP role are implicit within the curriculum document. These are encompassed within the aim of the award and the concept of the NNP role which enables the student to:

- reflect upon the role of the ANNP
- utilise an extended knowledge base and adopt a problem solving approach to care
- develop an understanding of research methodology and practice, to facilitate involvement in research and the development/education of other staff
- instigate and develop policies and protocols and through appropriate lobbying and negotiation further the cause of neonatal nursing

4.6 Recruitment and selection

The educational and professional criteria for entry to the different programmes are summarised in Table 4.3. It is clear that there are differences in the required length and nature of clinical practice prior to students commencing the ENB A19. For example, the programme at site D does not require or specify a minimum length of neonatal experience. However, it is acknowledged that the ENB 405 as a prerequisite, will effect a certain length of experience in neonatal nursing. For other programmes the length of experience required varies from 2 - 4 years (normally occurring post ENB 405). The ENB 405 is not, however, a prerequisite of the Site C programme, as this qualification can be attained as part of the Post Experience Diploma.

Prior to undertaking the ENB A19, three of the programmes (excluding Site C) state that students must have the ENB 997/8 or equivalent, perhaps acknowledging the potential teaching responsibilities of NNPs.

Site A is the only programme with a pre-course study package and subsequent examination with a multiple choice question format. This is designed to be completed over 10 weeks and tests the use of basic scientific concepts and vocabulary. The package is provided for those students who have been successful at interview.

SITE A Registration on part 1, 8, 10, 12 or 15 of the professional register Successful completion of a biohealth sciences entrance examination	ENB course 405 or equivalent Minimum of 4 years in a neonatal unit regularly providing intensive care (normally undertaken post ENB 405) ENB 997/8 or equivalent
SITE B Registration on part 1, 8, 10, 12 or 15 of the professional register Demonstration of the ability to study at the appropriate academic level	ENB course 405 or equivalent Minimum of two years post course 405 or equivalent experience ENB 997/8 or equivalent
SITE C Registration on part 1, 8, 10, 12 and 15 of the professional register Honours degree in nursing or a related discipline or demonstrate the ability to study at the appropriate academic level	ENB course 405 (if not, students would be required to undertake this) Minimum of 2 years neonatal experience
SITE D Registration on part 1, 8, 10, 12 or 15 of the professional register Diploma in nursing or evidence of level 2 knowledge by submission of portfolio	ENB course 405, or demonstration of achieved equivalent Currently working in a neonatal unit that can provide adequate and appropriate clinical supervision ENB 997/998 or equivalent

Table 4.3 Educational and professional criteria for the different ENB A19 programmes

In conjunction with the criteria identified above, each programme has a range of additional specifications e.g. health status, supporting references from home unit and legal aspects (police checks) that are required prior to students commencing a programme.

4.7 Programme macro-structure and organisation

There is considerable variation and complexity in the structure of the programmes. The basic information is given in Table 4.4 and the duration and module credit rating are detailed separately in Table 4.5.

Site A	• 12 months duration • 6 level 3 modules of varying credit rating 1x 5, 1 x 10, 1x 15, 1x 20, 1x 30 and 1x 40 credits
Site B	• 9 months duration • either 20 level 3 credits or 20 Ml level credits per module
Site C	Post Experience Diploma including the ENB A19 • 12 months duration • 10 level M1 credits per module • Core modules are undertaken with students completing different pathways within the Post Experience Diploma e.g. critical care (ICU) and acute orthopaedic nursing Masters in Health Science • 4 months • 5 level M credits per module
Site D	• 12 months duration • 4 x modules - 20 level 3 credits • 1 x module - 40 level 3 credits

Table 4.4 Over all structure and organisation of the ENB A19 programmes

The diversity in credit rating of modules is determined by the individual educational institutions and goes some way towards explaining the variation between the different programmes.

SITE A	LEVEL 3, 12 MONTHS		
	• Advanced Neonatal Nursing • Applied Neonatal Care • Behavioural Sciences • Biomedical Sciences Applied to the Neonate	• Principles of Research in Clinical Practice • Dissertation	
SITE B	LEVEL 3, 9 MONTHS ***OR*** M LEVEL - 9 MONTHS		
	• Resuscitation and Stabilisation of the Newborn * • The Well Term and Pre Term Baby * • Preparation for Advanced Neonatal Practice *		• Resuscitation and Stabilisation of the Newborn * • The Well Term and Pre Term Baby * • Preparation for Advanced Neonatal Practice *
SITE C	POST EXPERIENCE DIPLOMA, 12 MONTHS (M LEVEL)		MHSc, 4 MONTHS
	• Research Methods (C) • Statistics and Information technology (C) • Health / Illness / Disablement in Contemporary Society (C) • Bio/Psycho/Medical sciences (P) • Assessment, Evaluation and Nursing Diagnostics (P) • Law and Ethics and Professional Development 1 (C)	• Social Policy and the New NHS (C) • Human Systems and Change Processes (C) • Specialist Practice Fieldwork 1 (P) • Evaluation, Quality and Audit (C) • Specialist Practice Fieldwork 2 (P) • Proposal for Advanced Practice Research (C)	• Advanced Research Methods • Law and Ethics and Professional Development 2 • Advanced Practice Fieldwork • Advanced Statistics and Computing • Research Dissertation *
SITE D	LEVEL 3, 12 MONTHS		
	• Biosciences • Role Transition/Professional Practice	• Case Management * • Reflection on Practice • Research	

** Double Module (P) Pathway Module (C) Core*

Table 4.5 Programme duration, academic level and module structure

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4.7.1 Programme learning outcomes and aims

This section details the overall aims of each programme which have been taken directly from the documentation:

Site A

- to meet the needs of suitably experienced and motivated neonatal nurses to enable them to achieve through an advanced educational experience, a wide range of advanced skills and knowledge in order to improve the standard and quality of neonatal care. This programme aims to meet the learning outcomes applied to advanced practice (UKCC, 1995).

To develop Advanced Neonatal Nurse Practitioners capable of :

- assuming a leading role in the immediate critical care and the subsequent management of the neonate and their family
- demonstrating creative, innovative approaches towards problem solving by drawing upon an in-depth knowledge base
- a greater responsibility for patient care initiating management; this will involve immediate independent decision making involving clinical judgement, research based inquiry and leadership
- selecting and utilising appropriate professional skills for the maximum benefit of the infant and their family
- working effectively within a multi-disciplinary team
- critically analysing and evaluating the knowledge base of neonatal care in order to further develop the professional base of the ANNP

Site B

- to deepen and broaden neonatal nursing skills and knowledge as well as provide an extension of technical and other neonatal skills. The overall intent of the course is to increase the practitioners diagnostic and decision making skills, not in isolation with specific tasks, but in order to give highly skilled holistic care to the sick or immature baby and the whole family (ENB Guidelines).

By the end of the course the student will:

- formulate and execute clinical decisions based on sound theoretical frameworks
- diagnose deviations from normal and initiate appropriate action
- organise total care for the well preterm baby and term baby
- apply advanced resuscitation skills when necessary
- appraise self development in relation to the role of advanced neonatal nurse practice

Site C

- to strengthen and broaden the scientific knowledge-bases of students so that they can participate effectively in shaping future multi-disciplinary health care practice; conduct research into aspects of practice and improve client outcomes.

Site D

- identify the needs of the sick neonate and his family and take responsibility for determining and carrying out the total, appropriate care and treatment required
- take responsibility for co-ordinating the total care and treatment of the neonate
- further knowledge by involvement in research and development/education of staff
- instigate and develop policies and protocols relevant to the care of neonates
- further the cause of neonatal nursing through appropriate negotiation and lobbying

In comparing these aims it is apparent that within each of the programme there is a focus on issues relating to improving the quality and standards of neonatal care. The importance of an enhanced knowledge base is also emphasised. However, there is disparity in the detail given, for example, specific reference to the development of clinical skills is not uniformly explicit throughout the documentation.

General and specific outcomes are described, but not all the programme documentation contains information about both types of learning outcome. The different projected roles of the NNP undertaking the particular programme are reflected in the outcomes. For example Site B focuses on the well preterm and term baby and neonatal resuscitation and stabilisation whilst other programmes are also concerned with the on-going care of the critically ill preterm and term baby.

4.8 Programme meso-structure and organisation

This section describes the organisation of study days and clinical practice. Study days differ in the length of contact hours within and between programmes:

Site A -
Part 1 (36 weeks)
70 study days arranged in block weeks
10 self-directed study days
remaining time: clinical practice/annual leave/private study time

Part 2 (14 weeks)
10 study days arranged in block weeks
remaining time: clinical practice/annual leave/private study time

Site B -
23 weekly study days
remaining time: clinical practice/annual leave/private study time

Site C -
(Post Experience Diploma and ENB A19 only)
360 contact hours (30 hours per module) partial block study days
remaining time: clinical practice/annual leave/private study time

Site D -
60 study days arranged in block weeks
remaining time: clinical practice/annual leave/private study time

The theoretical teaching is usually university based and the clinical practice component of each programme usually takes place in the student's seconding unit. However, when necessary, individual students can negotiate periods of practice in other units to facilitate the development of a greater range of clinical skills.

Sites A, C and D programme documentation states that supernumerary status is essential for clinical practice. Whilst this is not explicitly stated within the documentation from Site B, reference to10 hours supervised clinical practice per week, per module implies that supernumerary status is required.

Each programme differs in its specification for time spent in clinical practice. It seems that the organisation of supervised clinical practice is the responsibility of individual students in negotiation with their clinical mentors. The pattern of organisation again varies, with an emphasis on the consolidation of clinical experience during the last three months of the Site A and Site D programmes. Within the Site B and Site C programmes clinical practice seems more evenly distributed throughout the whole programme.

4.9 Programme micro structure and organisation

4.9.1 Module learning outcomes

Each of the modules identifies a range of student learning outcomes ranging from four to fifty in number. The nature of the outcomes vary considerably within and between programmes and whilst some modules have specific learning outcomes, others are quite general. For example, one module has five learning outcomes which encompass understanding of the research process and the critical analysis of research studies. In comparison, a module within the same programme lists specific learning outcomes, for example: discuss the transition from fetal to neonatal circulation, identify the principles and process of resuscitation and describe the management of birth asphyxia.

In general the learning outcomes mirror the academic level and content of each module. However, it is notable that within the Site B programme, where students choose to study at level 3 or level Ml, the learning outcomes are the same.

In each programme there is evidence of cognitive, affective and psychomotor behavioural learning outcomes, thus recognising that procedural knowledge (knowing how) is as important as declarative knowledge (knowing that) (Quinn, 1988). In addition, expressive learning outcomes can be identified within the programmes which pertain to the development of critical thinking skills and the ability to reflect on practice (Stenhouse,1975).

4.9.2 Programme content

The list of the modules (Table 4.5) and the description of the related learning outcomes (section 4.9.1) indicate that there are likely to be differences in the specific content of the four programmes. Whilst it is not possible to review all the content, two particular aspects will be considered. Firstly, content relating to the role of the NNP will be examined, as this is

integral to all the programmes. Secondly, content relating to the bio-medical sciences (including anatomy, physiology, genetics, embryology, biochemistry and microbiology) will be reviewed, as this encompasses a range of subjects which are fundamental to the knowledge base and yet appear to be inadequately addressed within some of the programmes that the students have undertaken (Chapter 5).

The NNP role

The programmes at Sites A, B and D all include a specific module which addresses issues directly relevant to becoming an NNP (Table 4.4). The timetabled sessions covering these subjects and total teaching hours appears to be equal across the three programmes. The topics covered include:

- History and development of the ANNP role
- Role transition
- Managing change
- Decision making
- Stress management
- Legal issues
- Assertiveness
- Problem solving

Whilst there is no specific module within the Site C programme that addresses these particular topics, they appear to be included in several modules e.g. "Assessment, Evaluation and Nursing Diagnostics" , "Law and Ethics and Professional Development". Thus over all, there appears to be some congruence on this subject area between the programmes.

Bio-medical sciences

The Site A, Site C and Site D programmes include at least one module that specifically addresses topics relating to the bio-medical sciences (Table 4.5). A notable proportion of the content of these modules appears to relate to standard bio-medical sciences. In addition, topics that are also fundamental to other modules are included within the three programmes, for example: assessment of the newborn and the management of specific neonatal problems. The allocated total teaching hours on bio-medical sciences appears to be similar on the Site C and D programmes. However, the input on the Site A programme appears to be considerably more, with a greater range of specific topics covered.

Within the Site B programme there is no specific module that addresses issues relating to the bio-medical sciences. Instead, this subject area is included within the "Care of the Well Term and Preterm Baby" and "Resuscitation and Stabilisation of the Newborn" modules. However, it appears that the total hours of teaching are substantially less and that a narrower range of topics are addressed than on the other programmes. Also it seems that at the outset students are assumed to have an understanding of normal bio-medical sciences and that the programme teaching relates to the application of this knowledge in the area of neonatal care.

4.9.3 Teaching and learning strategies - theory and practice

The programme documentation identifies the utilisation of a variety of strategies to facilitate teaching and student learning, as Table 4.6 illustrates.

PROGRAMME	TEACHING STRATEGIES	
SITE A	• Lectures • Clinical teaching • Seminars	• Tutorials • Pathology laboratory sessions • Journal club • "Baby of the day" (Case review)
SITE B	• Lectures • Clinical teaching • Seminars	• Group work • Diaries • Discussions
SITE C	• Lectures • Clinical teaching • Seminars • Debates	• Student presentations • Tutorials • Computer assisted learning • Laboratory sessions • Tutor directed learning
SITE D	• Lectures • Clinical teaching • Seminars • Debates • Group work / workshops	• Journal club • Role play • Discussion • Situational analysis • Case study

Table 4.6 Programme teaching and learning strategies: theory and practice

Whilst there are some similarities, for example the use of lectures and seminars, there is also variation and to some extent experiment. The diversity in this regard is likely to reflect the different experience of those organising and teaching the programmes and represents an attempt to address the issue of supporting the development of independent critical learners.

4.9.4 Teaching staff

A range of personnel have been involved in classroom-based teaching during the time that the programmes have been in operation. The programme leaders and other nursing and midwifery lecturers are involved in classroom teaching to a considerable degree. Whilst consultants contribute to all of the programmes, this input varies substantially in terms of total teaching hours. Clinicians have the least formal teaching input on the Site B programme.

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At the present stage, qualified and experienced NNPs appear to contribute relatively little to the formal classroom teaching of NNP students. This might be expected to change with time as they consolidate their skills, develop the NNP role and look for further challenges. A broad range of other personnel are involved in teaching on the Site A, C and D programmes, including pharmacists, neonatal physiotherapists, university lecturers in physiology, microbiology, genetics, ethics and law, psychologists, senior nurse managers and librarians. This diversity of professional involvement does not appear to be present in the Site B programme in which most of the teaching is undertaken by midwifery and nursing lecturers.

4.9.5 Clinical mentors

The terms mentor, assessor, supervisor and preceptor are all used interchangeably between documentation. However, for simplicity 'mentor' will be used throughout this section.

Whilst all mentors are provided with written guidelines by the programme co-ordinators, there are considerable differences in the content. The Site C documentation is the most extensive, and includes details about the programme structure. In comparison, the guidelines provided by the other programmes are specific to the assessment of clinical practice. The Site D documentation also emphasises legal issues relating to students undertaking new skills, and the importance of mentors being aware of these issues is stressed.

Only the Site A documentation states that programme co-ordinators undertake an initial visit to the seconding unit prior to the first student from that unit commencing the course. The purpose of this visit is to approve the unit as an appropriate learning environment for NNPs in training, to disseminate information and to facilitate a consistent approach to assessment.

The number of required mentors varies. Site B recommends that students have one mentor who may be a neonatal consultant or registrar or an NNP with the ENB A19. The other programmes recommend that students have two mentors, a senior clinician and a senior nurse, preferably an NNP.

4.10 Overall assessment strategies

Details of the types of assessment used in the different programmes are shown in Table 4.7 below. Attempts have been made to use each programmes' specific terminology for assessments, however, in some instances generic terms have been employed to facilitate comparison.

PROGRAMME	*ASSESSMENT*	
SITE A	• Written assignments • Clinical competencies	• Viva • Multiple choice exams
SITE B	• Essays • Clinical competencies	• Portfolio
SITE C	• Essays • Portfolio • Clinical competencies • Computing/Statistics Practical	• Exam • Research Proposal • Dissertation • Viva
SITE D	• Essay • Research critique • Portfolio of clinical experience • Core clinical skills	• Unseen exam • Dissertation • Viva

Table 4.7 Assessment strategies specific to the ENB A19 different programmes

4.10.1 Theoretical assessment strategies

As shown in Table 4.7 a variety of theoretical assessment strategies is employed by each of the four programmes, which partially reflects the differences in academic level and qualification attained. However, the rationale for the specific strategies used is not always provided within the documentation. It is evident that the number and form of the assessment strategies utilised by one programme particularly (Site B), are different from the other programmes i.e. absence of an examination and viva.

Checking and verifying the knowledge base that students have developed is critical, but how this is done can vary. Assessing the way that the student is able to link this knowledge with practice is also vital. Whilst some aspects of the theoretical assessments enable students to write about their experiences and clinical practice, the relationship that this bears to their actual performance is not a direct one. The use of case-studies for example, does show what a student understands about a condition or problem, how appropriate care may be planned and the processes of clinical decision-making involved in management and treatment. However, the relationship that this bears to practice is indirect. Similarly, essays or reflective diaries, though valuable ways of demonstrating learning, relate to practice and care in a less than direct way. The knowledge and insights gained are significant, but these come as much from recognising possible alternatives or errors, as in getting things right. Thus the role of appropriate supervision and assessment in the clinical area is a critical one in supporting new skills and areas of practice. Risk assessment and minimisation of risk are key elements in protecting both new practitioners and their client group.

4.10.2 Clinical practice assessment

The activities specified within the programme documentation as being assessed in clinical practice are those listed in Table 4.8. Information from only three programmes are presented, as there is no comparable list for Site C. Students undertaking the Site C programme identify which specific skills it is appropriate for them to acquire. These are specified within an individual learning contract and many of these are likely to be among those listed in Table 4.8. However, since the selection of these is dependent on the students and their mentors, there is no comparable list for this programme.

CLINICAL SKILLS	*Site A*	*Site B*	*Site D*
Withdraw blood from indwelling cannulae	✓		✓
Attachment and calibration of BP transducers	✓		
Capillary blood sampling	✓	✓	✓
Venepuncture	✓*	✓	✓
Peripheral venous cannulation	✓*	✓	✓
Percutaneous arterial sampling	✓		✓
Peripheral arterial cannulation	✓		✓
Umbilical artery cannulation	✓		✓
Umbilical vein cannulation	✓		
Insertion of central venous/ long lines	✓		✓
Perform face mask resuscitation		✓	
Bag and mask ventilation			✓
Endotracheal / nasal intubation	✓*	✓	✓
Perform cardiac massage		✓	✓
Needling the intra-pleural space / insert chest drain	✓	✓	✓
Administer volume expanding fluids		✓	
Administer drugs used in cardio-pulmonary resuscitation		✓	
Use of blood gas analyser & interpretation of blood gases		✓	✓
Initiation & alteration of ventilatory support		✓	✓
Exchange transfusion	✓		
Supra-pubic aspiration of bladder	✓		
Lumbar puncture	✓		✓
Examination / assessment of the newborn	✓	✓	
Initiate investigations and interpret results	✓	✓	✓
Management of fluid and electrolyte status			✓
Management of cardiovascular status			✓
Gestational age assessment		✓	

* *achievement of competency is essential*

Table 4.8 Clinical skills assessment as specified within programme documentation

While the Site A, Site B and Site D programmes identify a range of core skills that are required of students, there are differences in the activities selected. This diversity reflects the different projections regarding the NNP role. In addition to the specific skills identified,

students undertaking the Site B and Site D programmes are able to negotiate, through their learning contract, the attainment of additional skills. In this way it is thought that the needs of the seconding unit and the prospective NNP can be best fulfilled.

The Site A assessment strategy requires the clinical mentor to rate student attainment of competence on a graded scale of 1-5 at more than one point in time (weeks 13, 25, 31 and 37 of the programme). In this way the progression is monitored, however once a score of 5 is reached (accurate and consistent performance of the skill unsupervised), the skill is no longer reassessed

On the Site B, Site C and Site D programmes assessment of clinical practice appears to be made at the end of the course, with students being assessed on a pass or fail basis. The Site B documentation additionally states that that if students have not had the opportunity to be assessed in their performance of clinical skills, then a simulation exercise is considered to be acceptable.

In addition to the specific skills that students attain, each programme also identifies broader competencies to be achieved (e.g. communication skills, establishing relationships within the health care team), the nature of which vary between the programmes.

The lack of conformity amongst the programmes in this regard has been highlighted in examining the course documentation and seems to indicate that there is likely to be a considerable range in skill attainment among the students who complete the ENB A19. A mismatch between the amount and depth of theoretical teaching input and the clinical skills that are listed as being assessed is notable in the case of one programme (Site B). This is not only apparent from the documentation, but also from the responses of students, qualified NNPs and clinicians presented and discussed in Chapters 5, 6 and 8. Issues of transferability and the problems associated with programmes, such as that of Site C, not requiring core skills, are discussed in Chapter 9.

The viva examination, utilised by the Site A, C and D programmes, incorporates elements of theory and practice and in conjunction with assessment in the clinical area, is seen as an appropriate means of assessing both aspects of the programme. In addition, it provides the opportunity for the examiners involved in the process to ensure a consistent approach to the assessment of students within and between cohorts. Examiners for the viva may include the course leader, practising NNPs and senior clinicians associated with the programme.

4.10.3 External examiners

Each of the programmes has external examiners who monitor overall student performance and ensure parity in the utilisation of the assessment strategy. The external examiners are expected to review course material, approve the content and style of the written examinations, attend examiners' meetings and must submit a detailed report on the programme to the educational institution. The Site B, Site C and Site D programmes use one external examiner for their programmes. The individuals used have all been educationalists, usually with a neonatal nursing or midwifery background.

The Site A programme uses two external examiners each year: a senior clinician and a practising NNP. A number of different external examiners have been utilised by the programme since its inception.

4.11 Programme evaluation

Each of the programmes has a course management team that include a variety of relevant personnel. The function of the group is to monitor the progress and development of the programmes. Modules and overall programmes are evaluated by the students, using a range of strategies that include questionnaires and group discussion. These evaluations are subsequently presented to the course management teams and aspects of the programme may be modified.

4.12 Discussion of the ENB A19 programmes

Quality assurance issues are among the most salient that emerge from the preceding examination of the programmes of education. The different academic levels, differing qualifications, diverse assessment strategies and divergence in what are thought of as 'core' skills are associated with apparently similar ENB approved A19 programmes. A lack of comparability between courses apparently offering the same award is of concern from the perspective of those graduating and organising the programmes and from the standpoint of those employing the graduates from different programmes. Innovation and diversity in some measure are to be welcomed on the one hand, however, the issues of standards and parity is a critical one if the graduates of such programmes are to be similarly competent and valued accordingly.

Transition to their new role and practice as NNPs generally takes place within the student's seconding unit. The response of colleagues, both nursing and medical, will depend on individual factors such as prevailing attitudes, expectations, previous working relationships and organisational pressures. However, the way in which changes to role are facilitated and supported also depends on how the programme is presented to colleagues and managers. The issue of differences between programmes and a lack of comparability was raised by many professionals concerned in the development including course organisers, NNPs and NNP students, senior clinicians and midwifery managers (Chapters 5, 6, and 8).

The content, focus and main thrust of programmes differs as reflected in the module topics and the range of staff involved in teaching. There was little consistency about the ways in which programme information in the documentation is presented by the organisers. This is determined by the requirements of the different academic institutions responsible for the development of these programmes. Comparisons of the programmes at this level are inevitably inexact, though "good enough" for the purpose of highlighting differences and fundamental issues. It is difficult to match the intended and transactional curriculum, that is, what is stated in the document and what happens in reality as programmes are run. The experience of the students and qualified NNPs documented in this study (Chapters 5, 6 and 7) provides some evidence on this point.

Specific questions concerning the education of NNPs have arisen from this part of the evaluation:

- Is there a 'core content' that is appropriate for all similar programmes ?
- Are there 'core skills' that are needed for working with infants as NNPs ?
- How should the theoretical knowledge base and problems-solving skills be assessed ?
- Should there be parity in assessment procedures?
- What role should external examiners play and from which disciplines or professions should they be selected?
- Are there essential entry requirements that should be common across programmes?
- Should validation documentation and course description have a similar structure and information to enable comparison?

Discussion relating to these questions is taken up at intervals through the report and again in the final discussion chapter. Most of these crucial issues are also relevant to the section which follows about selected non-ENB A19 neonatal courses (excluding the ENB 405 Special and Intensive care of the Newborn) and to ENB post-registration programmes more generally.

4.13 Other programmes: Introduction

In addition to the ENB A19, a range of other programmes are available for neonatal nurses wishing to undertake enhanced or extended roles. Some of these are solely "in house" and these have not been included in the present study. The focus of other programmes available to neonatal nurses differ widely, with varying degrees of emphasis placed on more technical aspects of the nurses' role. In the following section four such programmes are described. The information was obtained from the documentation and in the course of discussion with programme leaders.

Each of the programmes, described separately in the sections which follow, were developed following the recognition by neonatal unit nurse managers and senior clinicians that neonatal nurses with enhanced or extended skills were required within the neonatal units local to the particular educational institution. For a variety of reasons, in each case the ENB A19 was not considered appropriate to meet the needs of the units by those initiating and organising these programmes.

Details of the numbers of students completing the non-ENB A19 programmes to be discussed are shown in Table 4.9.

Institution	*Programme*	*Number of students completed the programme*	*Number of students: Current programme*
SITE W	ENB A99	5	8
SITE X	Enhanced Practice in Neonatal Care Module	4 cohorts	3
SITE Y	ENB R23	56	14
SITE Z	ENB SA19	0	3 *(completing June 1999)*

Table 4.9 Details of the non-ENB A19 programmes and numbers of students undertaking them

The associated assessment strategies for these same programmes are shown in Table 4.10.

PROGRAMME	*ASSESSMENT STRATEGY*
ENB A99: Enhanced Neonatal practice	Assignments* Seminar presentations (level 3) Practice assessment document
Enhanced Practice in Neonatal Care	Portfolio of evidence Assignment Viva Clinical assessment (level 2 **or** 3)
ENB R23: Enhancing Neonatal Nursing Practice	Examination Assignment Practice assessment document
ENB SA19: Specialist Neonatal Nurse Practitioner Programme	Assignments Presentation Workplace environmental audit Multiple choice questions examination Clinical competencies Self and peer assessment of 8 teaching sessions Production of teaching aid Dissertation

** different word limit dependent on academic level pursued*

Table 4.10 Assessment strategies of the programmes listed

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4.14 ENB A99, Enhanced Neonatal Practice, Site W

4.14.1 Programme aims and learning outcomes

- To encourage the practitioner to influence practice through the development and dissemination of enhanced neonatal knowledge and expertise
- To enable practitioners to develop their existing knowledge and skills essential in delivering enhanced quality neonatal care
- To enable practitioners to deepen their knowledge of practice issues

By the end of the programme the practitioner will:

- achieve an in-depth knowledge and understanding of theoretical perspectives applied to neonatal practice
- modify and expand existing levels of understanding concerning the art and science of neonatal nursing
- achieve an enhanced level of reflection on practice issues
- demonstrate a critical awareness of the social, political, ethical and legal contexts in which neonatal care is delivered
- extend the range of expertise in the activities of the neonatal nurse

4.14.2 Award attained and student entry criteria

ENB A99, 60 level 2 or 3 credits

- Registration on Part 1, 8, 10, 12 or 15 of the UKCC Professional Register
- ENB course 405 or equivalent with a minimum of 18 months post course experience
- Evidence of further professional development
- Work a minimum of 16 hours a week in a clinical neonatal setting
- Unit manager agreement to allow students opportunities to fulfil their learning needs

So far one cohort of students has completed the programme (Table 4.9). To date, students have been drawn from local neonatal units, however applications for future intakes include neonatal nurses working further afield. Prior to commencing the programme students have generally been working in F and G grade posts.

4.14.3 Programme structure and assessment strategy

This is a four module programme which can be undertaken at level 2 or 3. The learning outcomes of the modules vary, depending upon which academic level the student is pursuing. The minimum duration of the programme is two academic terms, the maximum duration is six academic terms (2 years). The modules are:

- Scientific Base for Neonatal Care
  (30 contact, 15 practice and 30 self study hours)

- Neonatal Care - Ethical and Legal issues*
  (35 contact, 15 practice and 25 self study hours)

- Professional Development for Neonatal nurses*
  (25 contact, 25 practice and 25 self study hours)

- Excellence in Practice - Challenges in Neonatal Care
  (25 contact, 25 practice and 25 self study hours)

** Some teaching relating to these modules may be shared with ENB A31 - Enhanced Midwifery Practice.*

Each module is a total of 75 hours in length, this comprises of theory (contact), practice and self directed study. Clinical practice is undertaken in the seconding unit.

There is a theoretical assessment for each module, however the nature of the assignment (word length, topic and domain) varies, depending upon which academic level the student is pursuing. In addition, utilising a learning contract, students negotiate in conjunction with their seconding unit, which clinical skills they develop during the programme. These skills which vary between students are assessed using a practice assessment documents. (Table 4.10). Clinical practitioners, including senior clinicians, specialist registrars, NNPs, nurse managers and course leaders, undertake the clinical assessment of students. The identity of the assessor varies and is dependent on the specific competency to be achieved.

4.15 Enhanced Practice in Neonatal Care Module, Site X

4.15.1 Programme aims

- To enhance clinical practice enabling a truly holistic approach to care for the baby requiring intensive nursing

- To enhance clinical practice in the specified areas for nurses and midwives

- To explore relevant aspects of accountability, professional, ethical and quality issues, relating to practice.

4.15.2 Award attained and student entry criteria

Enhanced Practice in Neonatal Care Module, double module - 20 level 2 credits and a further 20 level 2 or 3 credits.

- Registration on Part 1, 8, 10, 12 or 15 of the UKCC Professional Register
- ENB course 405 or equivalent with a minimum of 1 year post course experience
- Evidence of ability to study at the required academic level

To date 4 cohorts of students have completed the programme. (Table 4.9). Generally the students have been recruited from local neonatal units, however some students from further away, for example Dorset, Cambridgeshire and the Midlands, have undertaken the programme.

4.15.3 Programme structure and assessment strategy

The programme (one double module) consists of 13 study days arranged over 24 weeks. The total teaching time is 72 hours, with an additional 72 hours of self-directed study time. The first module relates to applied biosciences and is undertaken at level 2; the clinical module can be undertaken at level 2 or 3. The double module can be also be undertaken as part of the BSc (Hons) Nursing and Midwifery Practice Award rather than just as a "stand alone" module. Clinical practice is undertaken in the seconding unit. The overall module content is stated as including:

- Accountability in professional practice
- Legal and ethical issues
- Management of umbilical catheterisation
- Management of neonatal intubation and resuscitation
- Management of ventilation
- Emergency management of pneumothorax
- Management of venepuncture and cannulation
- Scope of professional practice and implications to role
- Management of pain in the neonate
- Neonatal pharmacology
- Multi-disciplinary approaches to care

The assessment strategy consists of theoretical and clinical components. There is an option to take the clinical component at level 3 (Table 4.10). The student must demonstrate competency in a minimum of three of the following clinical skills:

- Intubation and resuscitation
- Management of ventilation
- Cannulation and venepuncture
- Insertion and removal of umbilical catheter
- Emergency management of pneumothorax

Students receive classroom-based teaching on all five clinical skills. Clinical supervision and mentorship is facilitated by the module leader and clinical specialists (Consultants, Specialist Registrars and NNPs).

4.16 ENB R23, Enhancing Neonatal Nursing Practice, Site Y

4.16.1 Programme aim and learning outcomes

To build upon the knowledge and competencies gained from the ENB 405 programme in enhancing holistic neonatal nursing practice. The module will facilitate the development of higher levels of clinical decision-making with emphasis upon the parameters of practice and accountability.

By the end of the programme the practitioner will:

- be able to internalise new knowledge and challenge existing neonatal nursing practice justifying change
- demonstrate the ability to evaluate neonatal management holistically while focusing accurately on specific problems or needs
- anticipate and circumvent problems using appropriate management strategies
- integrate into the neonatal team and be instrumental in evaluating standards and quality of management
- be proactive in the development and dissemination of research relative to the care of the neonate and family
- recognise ethical and legal dilemmas and be able to discuss and defend management strategies
- act as an advocate for the infant and his family, supporting and empowering parents to contribute to decisions about care options for their child
- be able to critically appraise personal practice and maintain high standards of personal performance
- be willing and able to share knowledge, skills and expertise contributing to the development of research based neonatal care

4.16.2 Award attained and student entry criteria

ENB R23, 40 level 3 credits

- Registration on Part 1, 8, 10, 12 or 15 of the UKCC Professional Register

- ENB course 405 or equivalent with a minimum of 1 year post course experience
- Evidence of level 2 study
- Unit manager support

So far five cohorts of students have completed the programme (Table 4.9). Students have generally been recruited from neonatal units within the immediate geographical area, however, some students from more distant Trusts have undertaken the programme including North Wales, London and Cumbria. Most commonly they have been recruited from either regional or district neonatal units (Table 4.11).

Unit Type	**REGIONAL**	**SUB-REGIONAL**	**DISTRICT**	**SMALL DISTRICT**
Number of R23 graduates	29	4	20	3

Table 4.11 Numbers of R23 graduates and type of seconding neonatal unit

4.16.3 Programme structure and assessment strategy

This is a one module programme which is undertaken at level 3. The duration of the programme is 15 weeks, during which there are ten study days. Students are also given directed study which they must complete before commencing the module. Practical classroom based teaching is provided for skills such as intubation, blood gas interpretation, ventilator management and intravenous cannulation. Clinical practice is undertaken in the seconding unit.

The assessment strategy for the module has a theoretical and clinical component. Theory is assessed by examination and assignment work. Using a learning contract, students negotiate in conjunction with their seconding unit, which clinical skills they develop during the programme. These skills vary between students and are assessed using a practice assessment document (Table 4.10). Students have two assessors (one nurse, one doctor - usually "middle grade"). Nurses who have completed ENB A19 or ENB R23 often undertake the role of the nurse assessor.

4.16.4 Continuing professional development

Follow up study days are organised for programme graduates, on an annual basis. These included formal and informal sessions.

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4.17 ENB SA19, Specialist Neonatal Nurse Practitioner Programme, Site Z

4.17.1 Programme aims and learning outcomes

- to increase the practitioners' ability to give safe, competent holistic care (to) the sick or immature infant and family, and be able to extend and innovate that care through research-based reflective practice, and effective care management

- deepen and broaden neonatal nursing knowledge and skills through the provision of a curriculum which accurately reflects practice and explores its unique values and knowledge within a professional and academic framework

By the end of the programme the practitioner will be able to:

- utilise acquired specialist knowledge and skills to provide neonatal care at specialist level

- exercise professional accountability and responsibility in monitoring the effectiveness of personal role development and change practice within the team structure

- operate as an enquiring and critical thinking professional, acting as a role model and resource for others.

- utilise systematic methods of enquiry to validate practice and contribute to debate

- disseminate good practice within the profession and across disciplines

4.17.2 Award attained and student entry criteria

ENB SA19

- Registration on Part 1, 8, 10, 12 or 15 of the UKCC Professional Register
- ENB course 405 or equivalent with a minimum of 1 year post course experience
- Be in a role that allows students to undertake clinical practice leadership and development
- Evidence of clinical manager support

In total 20 students are currently enrolled on the whole programme and three students from the first cohort will have completed the programme by June 1999.

4.17.3 Programme structure and assessment strategy

The SA19 is a six module, level 3 programme which forms the final year of a three year degree programme. Students undertaking the whole degree, as experienced nurses or midwives, enter with "advanced standing" at level 1. Therefore students can start at year 2 of the degree which comprises of 7 level 2 modules incorporating ENB course 405. A minimum of one year post ENB 405 experience is a pre-requisite of progressing to the final year of the

degree. The modules of the whole programme also contribute towards the ENB Higher Award. Students who complete the whole programme and all its requirements therefore exit with the ENB 405, ENB SA19, BSc (Hons) Neonatal Practice and, if the wish, the ENB Higher Award.

Alternatively, students with ENB 405 or equivalent and a minimum of one year post course experience and appropriate academic standing, can enter the programme at the third year of the degree. This is providing that they completed the ENB 405 within the last five years. If this is not the case, students are encouraged to also undertake two modules within the ENB 405: Professional Issues and Research in Practice. Students completing the ENB SA19 also exit with BSc (Hons) Neonatal Practice and if they wish, the ENB Higher Award.

The duration of the SA19 programme (year three of the degree) is 36 weeks. The same modules can be spread out and taken over a maximum period of five years.

The SA19 modules are:

- Education in Practice
- Principles and Practice of Respiratory Management
- Management of Neonatal Emergencies (half module)
- Neonatal Vascular Access and Parenteral Therapy (half module)
- Developmentally Focused Care for High Risk Newborns and Families
- Dissertation (double module)

Each module requires a minimum of 6 hours theoretical study and 6 hours supervised clinical practice per week. Therefore students undertaking the ENB SA19 who study the equivalent of three modules per semester must complete 18 hours theoretical study and 18 hours clinical practice per week. Clinical practice is undertaken in the seconding unit.

Each module has a theoretical assessment (Table 4.10). In addition, three of the modules require the achievement of clinical competencies which include:

- Surfactant administration
- Blood sampling from arterial lines
- Making changes in ventilation regimes
- Capillary blood sampling
- Intubation - endotracheal / naso-tracheal
- Management of the convulsing baby
- Intravenous cannulation
- Blood sampling from venous lines

Clinical competency must be attained within 6 months of completion of the programme.

Students are also taught other skills which include umbilical artery catheterisation, peripheral line insertion and treatment of tension pneumothorax. However, competency in the performance of these additional skills is only assessed if they are likely to be undertaken by the SA19 graduate in their particular clinical area. Clinical practitioners (neonatal consultant or senior member of the medical team) undertake the clinical assessment of students.

4.18 Issues arising from the non-ENB A19 programmes

Given the current drive to reduce variability in the services provided in practice (NHS Executive, 1998) consistency of educational input may be considered a critical factor in realising such a goal. There is considerable diversity between the non-ENB A19 courses which parallels the differences between the ENB A19 programmes. In many respects these other programmes are similar and there are clear points of overlap; this is evident in the aims and learning outcomes, in the structure and content of modules, the methods of assessment and in the way that graduates are expected to practice on completion of the course. However, there are substantial differences in the duration and cost of the different programmes and the extent to which supernumerary status is allowed for all or part of the course. These latter differences are likely to impact on the take-up and support for these and the ENB A19 programmes.

The specific programme that a student can undertake is also influenced by the geographical area in which they are employed and the educational institution with which their seconding unit has set up contracts for educational provision. This would appear to be to the disadvantage of some neonatal nurses, who may not be able to undertake the educational programme most suitable for them. This is also true for some nurses participating in the ENB A19 programmes.

There are now a substantial number of neonatal nurses (over 70), who have graduated from one of the four non-ENB A19 programmes described. It is not possible to determine how these neonatal nurses are functioning and whether they are currently practising in the role for which they have been prepared. In having apparently similar roles at different levels, with a variable emphasis or value put on specific areas, it seems possible that the increasing numbers of nurses completing these programmes will contribute to greater diversity in the future, at least in the short term.

The differences in clinical skills undertaken as a result of completing one of these programmes is likely to create difficulties with regard to transferability and recruitment of neonatal nurses now and in the future. There are also problems with definition and recognition: some of the graduates from these other programmes refer to themselves or are employed as "NNPs", leading to confusion among employers and colleagues. There is also the associated issue of protection of the public. If employers are not clear, it is easy to see how a vulnerable group such as parents whose babies are cared for in neonatal units might be similarly confused.

4.19 Education and purpose

With such a diversity of educational preparation, as shown by ENB A19 and the non-ENB A19 neonatal courses examined, the issue of quality assurance and standards has become central to practice and care and to the professional status of graduates from these programmes. While the positive motivation of the co-ordinators and the relevance of the content of the courses to neonatal care are acknowledged, the future of both practitioners and patient care requires consideration. The effective protection of both, within a wider framework requires negotiation and agreement among the professional organisations and educational institutions. With new roles, like that of the NNP, which involve sharing and transferring of clinical skills and responsibilities, professional regulation, registration, the legal responsibilities of individual practitioners and the trusts that employ them are issues that require discussion and clarification (Redshaw and Harris, 1995; Harris and Redshaw, 1998; Levenson and Vaughan, 1999).

In view of the different aims of the ENB A19 programmes studied, it perhaps not surprising that they differ in content, learning outcomes, assessment strategies and other respects. What is surprising is that while "local need" may have given rise to these differences, a more coherent and integrated approach to the education required for an new kind of practitioner has not been taken up (Redshaw and Harris, 1995). It may be the case that other programmes in nurse education show similar or greater diversity, but that would simply confirm the need for a co-ordinated approach on a wider front (ENB, 1997). In considering quality assurance, the emphasis should perhaps more appropriately be on client need and the function and role of the nurses undertaking these educational programmes.

Chapter 5 *The experience of students*

5.1. Introduction

Investigating how students undertaking a course see it and the nature of their educational experience is a vital part of any evaluation. The programmes, their content and organisation were described in the previous chapter. The comparisons made during the detailed examination of documentary evidence including timetables, module descriptions, assessment strategies and student handbooks attest to diversity and difference. However, there are commonalities: the care that small and sick infants and their parents need, especially that required in emergency situations, differs little. From a technical or care management perspective the skills and knowledge required are also not likely to vary in a significant way. Thus, though the issue of programme differences will be raised at intervals, examination of the educational process, the individuals' responses to the programmes and the ways in which these addressed their needs will be discussed for the most part as a whole.

The data to be presented have been collected on cohorts of students undertaking the different programmes. These data do not include those collected on the cohorts who participated in the previous study (Redshaw and Harris, 1995). Some data were collected in the form of a single questionnaire completed at the end of the programme (55 students) and other data were collected using three questionnaires at the beginning, middle and end of the programmes (68 students in total). The former data on the 55 students were collected prior to the initiation of this study, but with the recognition that continued monitoring and evaluation was essential for the development. The data from both sources have been used in the analyses and the numbers of students on whom the data for individual items are based are indicated for each item or aspect.

5.2. Characteristics of students entering ENB A19 programmes

In evaluating any education programme it is useful to collect and compile some basic data about the individuals undertaking the course. Variables such as age, educational background, grade, title, experience and family circumstances will affect the responses made and the ways in which the educational experience is handled and assimilated.

A total of 156 qualified NNPs have graduated from the four ENB A19 programmes, five students failed to complete a programme and one student failed to pass all the assessments required.

Using the data from those filling in the first questionnaire, of those students entering the programmes more than half have A-levels (53%) and nearly a quarter have a BA or BSc degree (23%), with very few having postgraduate degrees (less than 2%). The majority of the students have a partner (78%) and well over a third have children (42%), with more than a quarter of those with children having one or more of pre-school age. A small number (3 out of 120) have other dependants.

Prior to starting the programme most of the students were involved in nursing care (92%) and substantial proportions were also involved in teaching (38%) and unit management (44%). As Figures 5.1a and 5.1b show, relatively senior nurses are undertaking the programmes, with more than half being sisters or charge nurses and nearly two thirds being employed at G grade or higher.

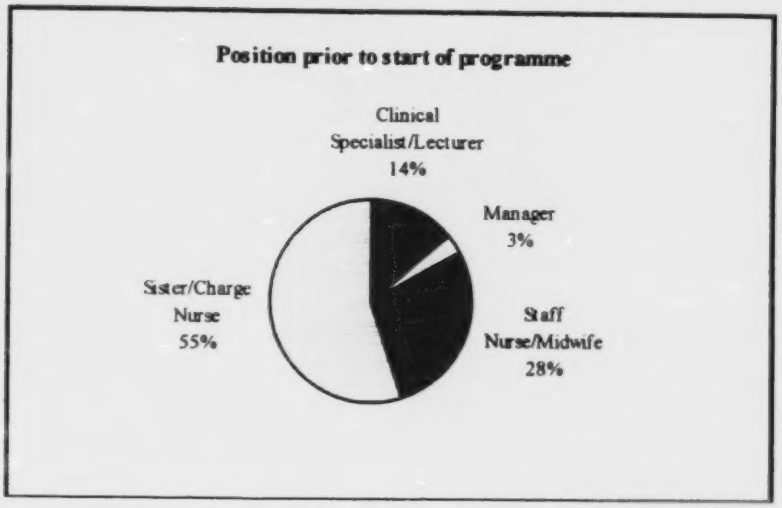


Figure 5.1a Position of students prior to start of the ENB A19 programme (n=120)

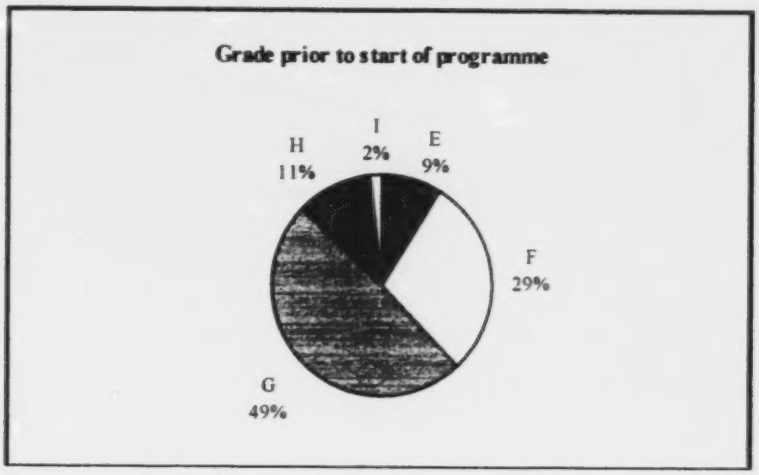


Figure 5.1b Grade of students prior to start of the ENB A19 programme (n=120)

As might be expected, the average age on starting the course was quite high (mean 36.7 years) and the average time spent in neonatal nursing before beginning the programme was considerable (mean 10.2 years)(Figure 5.2).

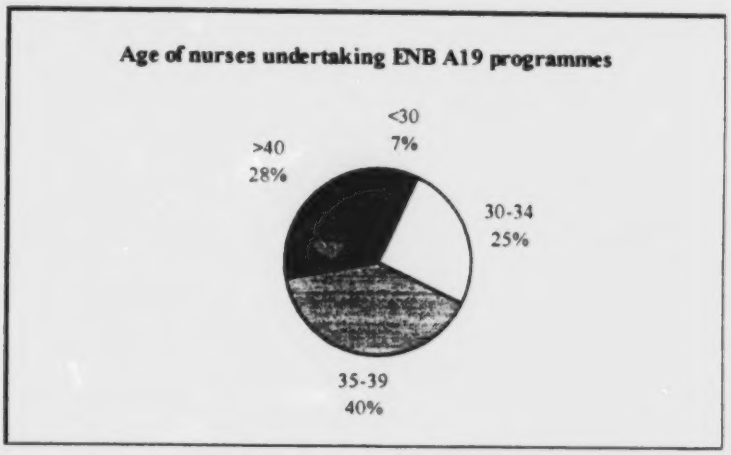


Figure 5.2 Age of students prior to start of ENB A19 programme (n=120)

Some nurses had worked in just one or two neonatal units (44%), but a similar proportion had worked in three or four units (43%) and 13% had worked in greater numbers of units than this, often including periods of time spent abroad. A total of 17.5% of these neonatal nurses had worked abroad, commonly in Australia and New Zealand, the Middle East, Germany and other parts of Europe.

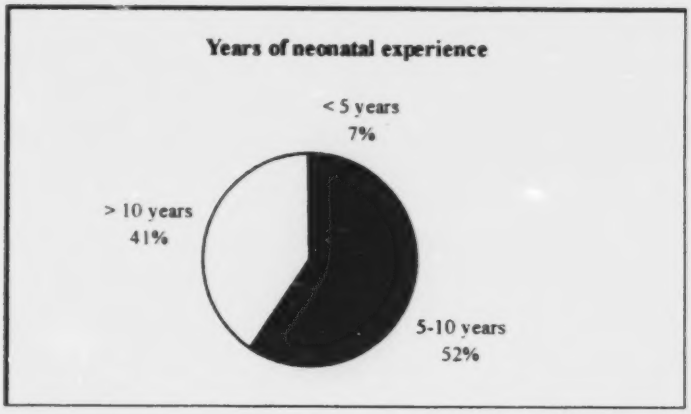


Figure 5.3 Years of experience in neonatal nursing at start of the ENB A19 programme (n=120)

In comparison with the population of neonatal nurses as a whole, these ENB A19 students had more neonatal nursing experience on average, had worked in greater numbers of units and were more likely to have gained experience working as nurses abroad (Redshaw, Harris and Ingram, 1996).

The nursing qualifications of the nurses selected for the programmes were as shown in Table 5. 1. As relatively mature, experienced nurses, most of whom were working in the clinical area, it is not surprising that some of those embarking on the ENB A19 advanced neonatal nurse practitioner programmes already had expanded roles in their home units.

Programme	***Qualifications***				
% cohort	***RGN***	***RM***	***RSCN***	***ENB 405 or equivalent***	***ENB 904 only***
Site A n=59	92.0	61.0	28.8	91.5	3.4
Site B n=30	90.0	60.0	16.7	86.7	6.7
Site C n=17	100	58.8	17.6	88.2	0
Site D n=14	100	35.7	21.4	92.9	0
Totals n=120	93.3	57.5	23.3	90.0*	3.3

* *12 students recorded as being without ENB 405 or equivalent qualification. Site C programme includes 405 qualification (accounts for 2 of the 12 above students).*

Table 5.1 Nursing qualifications of nurses selected for ENB A19 Programmes

A total of 38% of ENB A19 students said that in their home units nurses with the ENB 405 qualification were undertaking blood sampling by venepuncture and IV cannulation. The comparable figures for using the blood gas machine and intubation were 18% and 19% respectively. Practice prior to embarking on the course is likely to influence both the student's behaviour and the responses of others to changes in role. This may contribute to a priming effect with regard to acceptance or to a more competitive attitude on the part of nursing colleagues. Both have been experienced by new NNPs (see Chapter 6).

5.3 Programme content and organisation

As was discussed in Chapter 4, where the different programmes were described, the course content differs to some degree. The views of the students are illustrated with regard to the different topics covered in Figure 5.4. The areas where they felt more teaching was required were mainly in the biomedical science area, for example, biochemistry and microbiology.

"It was difficult not understanding some anatomy and physiology and biochemistry principles and having to re-read literature numerous times."

"It was difficult not understanding some anatomy and physiology and biochemistry principles and having to re-read literature numerous times."

For some students, all the theory they had been taught was something they were not confident of:

"Perhaps I am not as confident as I should be, but I would like to re - do all the lectures again to make sure I really know my subjects."

"All neonatal theory -it feels like I am going to spend the next five years re-reading all my notes."

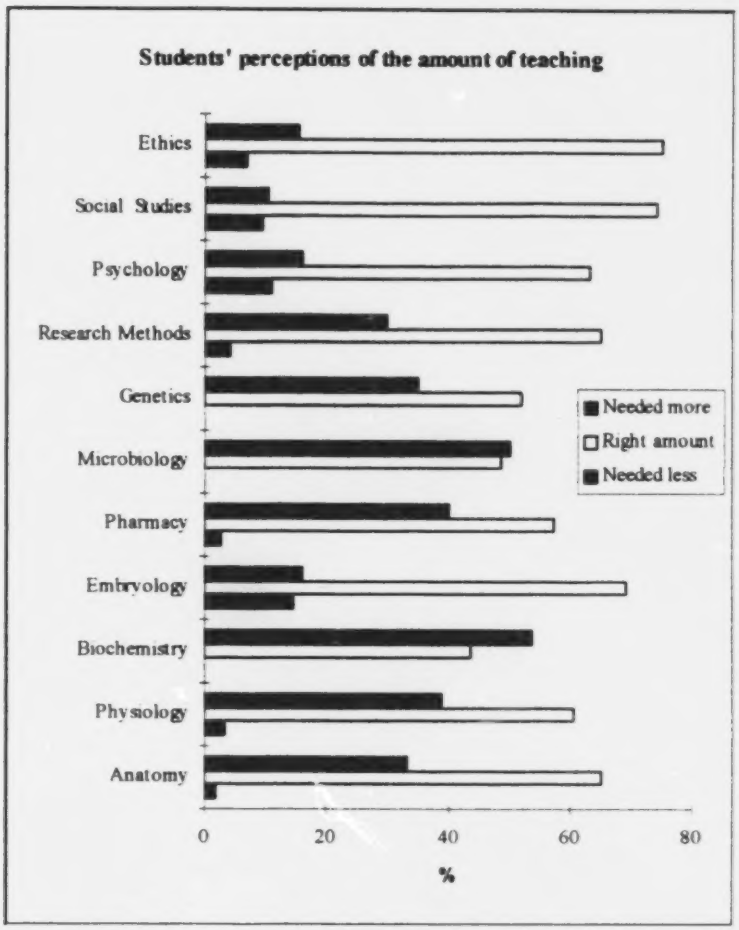


Table 5.4 Students' perceptions of the teaching required on specific topics (n=117)

More teaching was thought to be needed in every area by at least some students, even in the less clinically oriented areas such as psychology and ethics, which a small number of students in the previous study (Redshaw and Harris, 1995) saw as unnecessary all together.

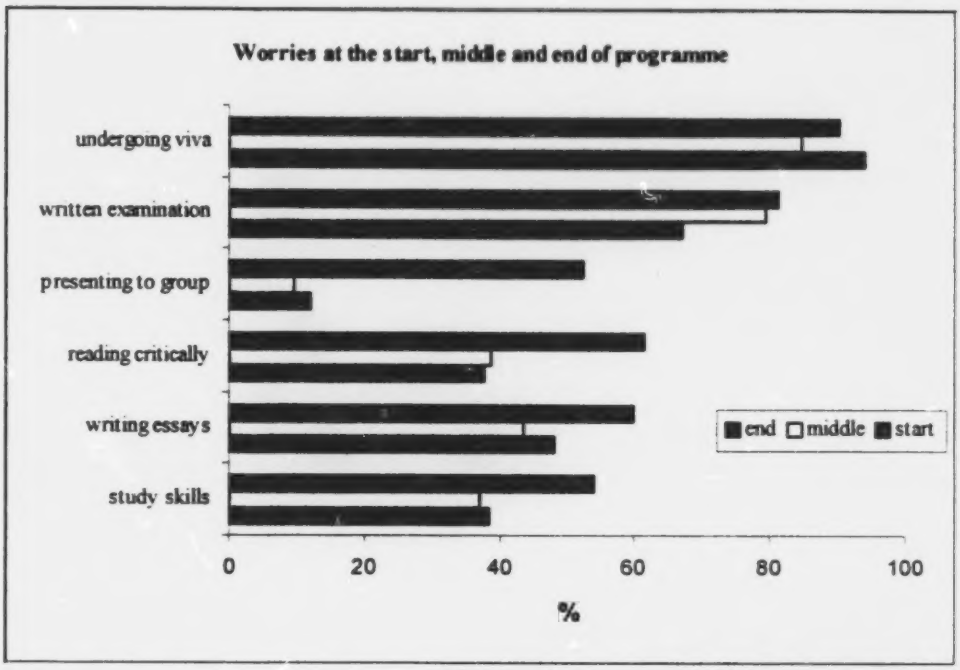
Differences were found between the students on the different programmes with regard to the subjects in which they felt more teaching was required. One, and at times, two programmes particularly contributed to the statistically significant differences found in relation to the teaching of anatomy ($p=<0.001$), physiology($p=<0.001$), biochemistry ($p=<0.001$), embryology ($p=<0.01$), pharmacy ($p=<0.001$) and microbiology ($p=<0.01$).

For some students there seemed to be a mismatch in the way that the material was linked with their own field:

"The theoretical component was predominantly related to nursing studies, when I really wanted to learn more about neonatal physiology and disease processes."
I feel that a better grounding in the theory during the course would have led to better understanding in the clinical area."

"I needed more theoretical knowledge to do with clinical based things and was disappointed that it was not more neonatally orientated"

The students were asked in a structured way about specific aspects of participating in this kind of educational programme (Figure 5.5).



*Site B students are not required to sit written examination and undergo a viva, thus adjusted n - start n=42, mid n=39 and end n=85

Figure 5.5 Aspects of the educational programme that worried students at different time points (n=114)

Some of these were concerned with assessment and others with the learning skills required for participation in the programme. Other than in relation to examinations, worries about, for example, presenting to the group and writing essays, decreased over time.

In responding to open-ended questions about what was difficult or worst about undertaking the programme, the students responded with a wide range of answers, some of which relate to the topics listed in Figure 5.5 above:

"Completing learning contracts and continuous assessment documents"

"Writing essays, when I hadn't done any for 15 years"

"Completing the research proposal"

"Trying to gain clinical experience"

"Minimal mentorship"

They were also asked a structured question about the specific aspects of the educational programme listed in Figure 5.6.

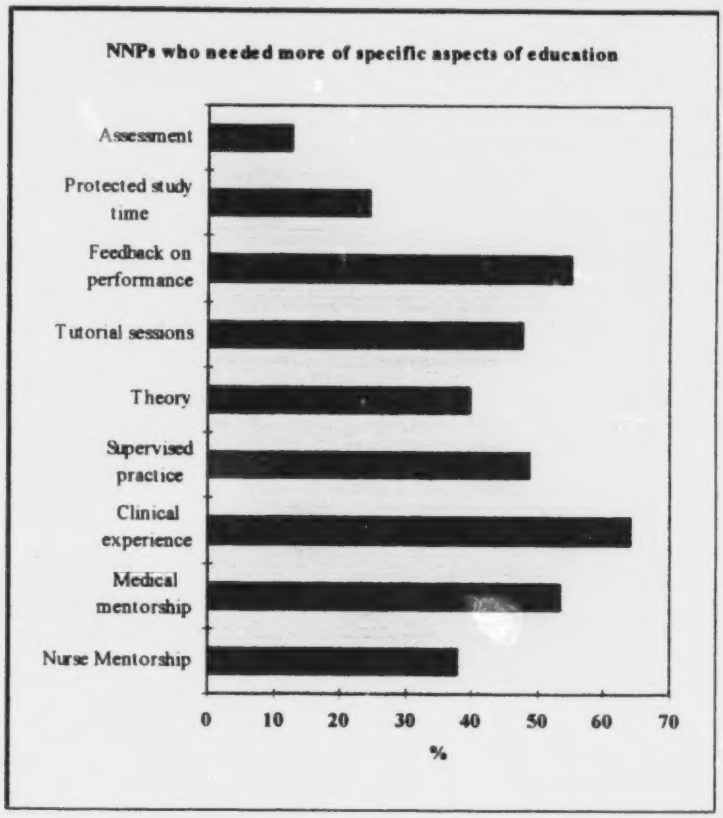


Figure 5.6 Proportion of NNP students needing more in specific areas at the end of the educational programme. (n=111)

Some of the aspects listed relate to practice and supervision in the home unit, to be considered in the next section. However, more than a third of students (40%) thought they needed more theoretical input and though there was a significant difference between students on the different courses in this respect ($p=<0.01$), some students on all programmes felt that more was needed. No significant differences were found between students seconded from the different types of unit. Asked about the way in which theory was linked with practice, over half (53%) of the students felt that their educational programmes had achieved this quite well or very well. A smaller proportion (19%) thought that the theory and practice were only rather loosely linked. (No significant differences were found in relation to programme or unit type in this regard.) However, they were aware of the ways in which this situation could be resolved:

"Identifying the 'right person at the right time' in clinical practice helped me apply theory to practice".

"There may be areas where I do not feel fully confident but I'm now more aware of further resources available to be able to remedy this."

"Often I didn't realise that I had failed to understand an area of theory until back in the clinical area, and it's not always possible to find the right person who has time and patience to go through the topic with you again."

At the end of the programmes the NNP students were asked if there were any areas of technical expertise about which they did not feel confident about at that stage and similarly about any theoretical areas about which they did not feel confident. A total of 93% reported that there were technical areas about which they did not feel confident and 75% likewise about some theoretical areas. The lack of confidence may reflect high standards and expectations of the students themselves or it may accurately reflect the content of the programmes and the teaching. A further element may also be the difficulty of the subject matter and the availability of clinical experience, thus some differences were found in relation to the type of unit in which the NNPs were based.

Technical Expertise	%	Theoretical areas	%
Intubation	41.2	Theory in many areas	25.4
Chest drain insertion	30.7	Anatomy and Physiology	15.8
U.A.C. insertion	24.6	Biochemistry	7.9
Lumbar punctures	18.4	Haematology	6.1
Central line insertion	8.8	Pharmacology	2.6
Resuscitation	6.1	Metabolic disease	2.6

Table 5.2 Technical and theoretical aspects of the programme about which NNP students do not feel confident at the end of the programme (n=114)

There are a whole range of technical skills and theoretical areas about which students did not feel confident at the end of their educational programmes. Those that occur most frequently are shown above in table 5.2.

A lack of confidence about more intrusive procedures was notable, with intubation being the one that concerned most students, followed by chest drain insertion and then UACs. Technical activities that were listed less frequently in this context included the use and interpretation of ultrasound scans, examination and assessment of sick newborns, central line insertion, arterial stabs and gaining peripheral arterial access.

There were a range of theoretical areas that students did not feel confident about in addition to those listed in Table 5.2 in which topics such as anatomy and physiology figure prominently. The areas that were reported by smaller numbers of students were, immunology, embryology, genetics and legal issues.

5.4 The home unit

The influence of the home or base unit is a powerful one. As the seconding unit, with responsibilities for selection of candidates, and as the place where most, if not all of the clinical experience is gained, managers, medical and nursing staff are in a situation in which they can make a substantial difference to the kind of experience the NNP students have. Several specific issues relating to the home unit are discussed in the following sections.

5.4.1 Supernumerary status and job descriptions

Almost all the NNP students had been involved in nursing care prior to the course and in working in their home units the question of supernumerary status and its effectiveness during such a programme of education is critical. It may be an indicator of the level of support for the student in the home unit or simply reflect extreme shortages of nursing staff. While most students were supernumerary during the programme, at least 1 in 10 were not. This was more likely to occur in district units, though the difference was not significant and there were students working in all types of unit who were not treated as supernumerary. The burden of working as a neonatal nurse at the same time as undertaking this kind of educational programme is enormous. Students at the end of the programme emphasised the importance of supernumerary status for the whole of the programme.

A further indicator of the effectiveness of planning and to some extent support for the role of NNP comes with the development of job descriptions. At the beginning of the programme 43% of students did not have a job description and the situation was little different at the end of the course.

"At the end of this course I felt exhausted and with a lack of a definite role I felt unsure whether all the 'blood, sweat and tears' were worth it"

The advice of many NNPs completing the programme was similar:

"Formally discuss and agree on job description and role, also agree on contracts i.e. pay etc. The role of an ANNP will only be fully implemented with full input and co-operation of the unit and directorate managers."

"Their role must be clearly defined and agreed upon by their unit manager and consultants before starting the course. This role can then be worked towards throughout the course."

There were small differences between courses in this respect which may partly be a consequence of the differing programme co-ordinators' expectations. The ambivalence, and some instances conflict, which is felt in some trusts concerning the role seems to be expressed in the slowness with which job descriptions and funding for posts emerge.

5.4.2. Supervision and teaching

Supervision and teaching in the home unit were provided by the different staff members shown in Figure 5.7a and 5.7b below. The pattern of teaching and supervision reported is similar to that described in an earlier smaller scale exploratory study (Redshaw and Harris, 1995), with the exception of the increasing involvement of qualified NNPs as they become established. The active role of the consultant neonatologists and paediatricians in teaching in all types of unit is evident. In the smallest category of unit, they are also most likely to supervise. Registrars take the main role in supervision in all the other types of unit (74% of NNP students overall) and are also likely to be involved in teaching (71% of NNP students over all). SHOs also have a role in teaching and supervision of NNP students; 44% of students reported being taught by SHOs and 39% as having been supervised by this group.

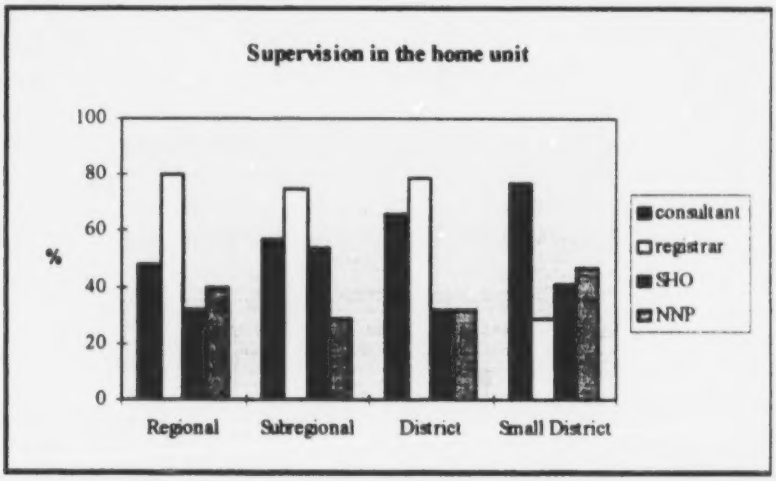


Figure 5.7a Supervision of NNPs by different staff members in the different types of home unit (n=117)

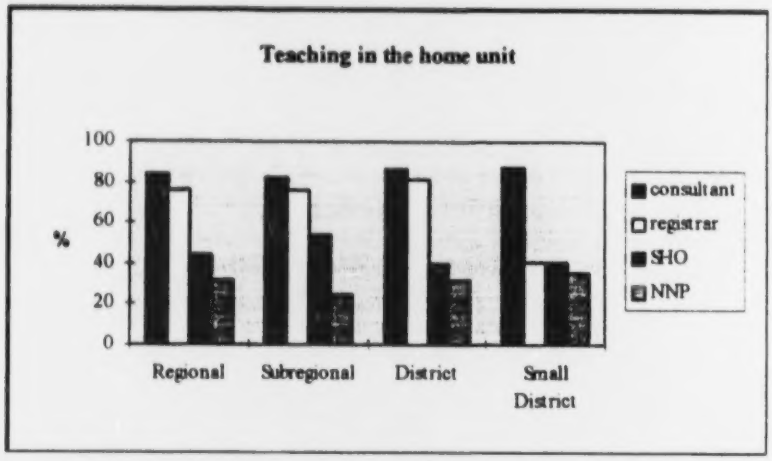


Figure 5.7b Teaching of NNPs by different staff members in the different types of home unit (n=117)

At the time of the study large numbers of NNP students were thus being taught and supervised by medical staff in the home unit. However, with nearly a third (31%) being taught and just over a third (35%) being supervised by experienced NNPs, this part of the education experience seems to be changing. As NNPs, clinicians and nurses work together, developing into truly multi-disciplinary teams the responsibilities for teaching and supervision may be managed differently and to some extent be interchangeable. Even at present it is clear that the NNP students are taught and supervised by a range of staff types and grades.

The students' views of supervision and teaching were elicited using a range of mainly structured question formats. Some responses to a question about different aspects of the programme (shown above in Figure 5.6) are directly relevant to the situation in the home unit. From that figure it is clear that at least 40% or more of NNP students would prefer more feedback on performance, more tutorial sessions, greater clinical experience and more medical mentorship. Students also expressed themselves in their own words. Negative experiences were described by individuals for whom the main problem was:

"Loneliness on the unit with no other NNP and a lack of apparent interest from other consultants."

"Minimal support - particularly in the clinical area."

Others more positively emphasise the need to foresee these problems and to develop strategies that maximise on clinical teaching and support:

"Choose a busy regional unit for your placement. Work in a unit other than your own. Use all resources available prior to, during and post course. Recruit support of all staff - look beyond nurses, doctors, midwives i.e. laboratory staff, x -ray etc. Develop decision making-skills - this is paramount. Remember the scope of practice."

The specific clinical skills that NNPs had acquired by the end of the programmes are shown in Figure 5.8a-c, as are those that have only been observed or carried out with supervision.

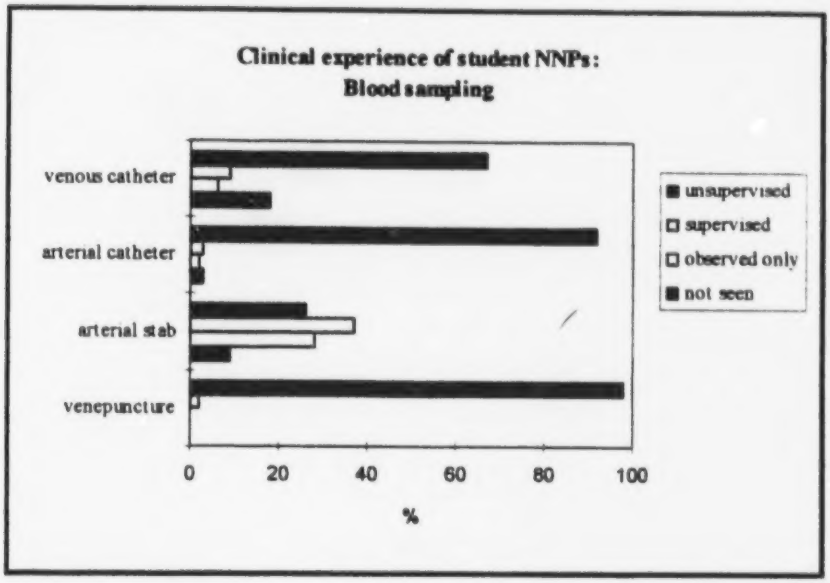


Figure 5.8a Clinical experience of NNP students by the end of the programme: Blood sampling (n=114)

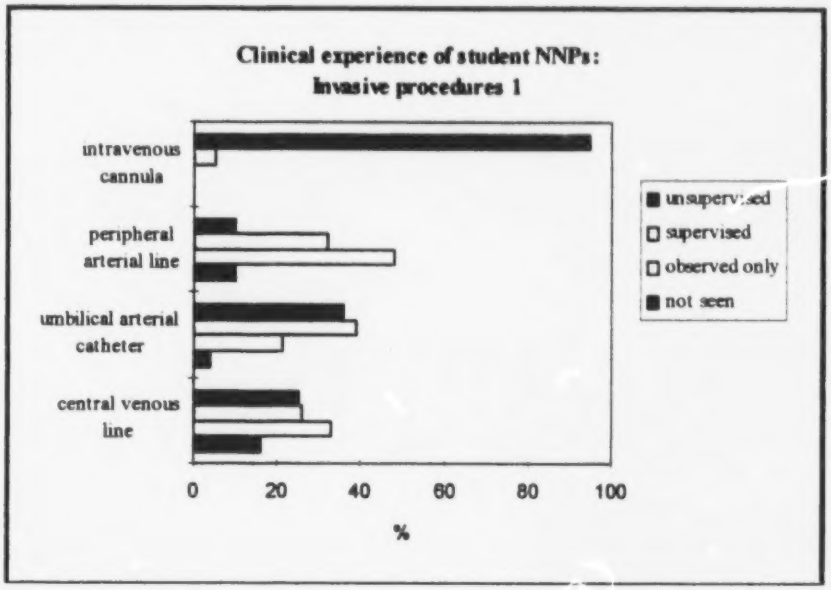


Figure 5.8b Clinical experience of NNP students by the end of the programme: Invasive procedures 1 (n=114)

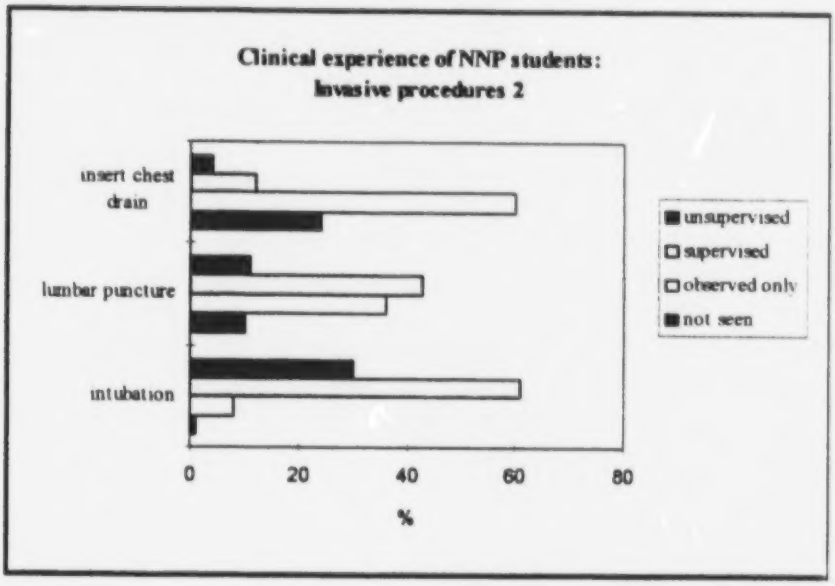


Figure 5.8c Clinical experience of NNP students by the end of the programme: Invasive procedures 2 (n=114)

5.4.3. Attitudes of medical and nursing colleagues

The way in which NNP students start to adjust to their new role and begin to practice their new skills and abilities is very much affected by the attitudes of their nursing and medical colleagues. In an open-ended question the 110 NNP students were asked about the ways in which the other members of staff in the neonatal unit had responded to the student's changing role.

Equal proportions of positive responses were made by NNP students about nursing and medical staff (55% and 56%); slightly more qualified responses were made about nursing colleagues (44% compared with 37%) than medical staff and most of the few exclusively critical responses were directed at medical staff. The latter responses concerned medical staff at both senior and junior levels. Responses concerning nursing staff often referred to individuals being less than positive or to particular groups of staff. For example nursing staff were seen as:

"Supportive in the main although a little cynical at times."

"Most positive, however several senior G grades have been particularly obstructive."

"At shop floor level the nurses are very supportive and are not able to understand why a specific role has not been identified. More senior staff feel that we are just back - as senior staff - not in a different capacity."

"Most are very supportive but some appear to feel threatened by my role change - especially the G grade sisters."

The NNPs mostly seem to feel valued by their nursing colleagues:

"They have been supportive so far and call me for experience."

"Very positive and supportive most of the time, occasional irritation that babies they are caring for have been interfered with by an NNP."

"Most have responded positively, and are pleased that they can call on our services - we are easily accessible and can respond immediately."

Feeling that other neonatal nurses think they are doing a good job and are prepared to support them in undertaking the programme seems to be critical for NNP student morale. The attitude towards the views of the medical staff is similar. Where medical staff were positive and encouraging NNP students felt able to develop both clinically and professionally. Some consultants have responded:

"With total commitment and enthusiasm. Without exception, they have shown interest throughout the course and have encouraged me to develop the role."

"Consultants and Registrars have been excellent. SHOs see me as a pair of hands and sigh with relief when they don't have to do everything!"

Though not all the NNP students' responses were as unequivocal:

"The junior staff are very supportive on the whole, after all it's them that we are helping. Middle grades appear to be more threatened by the role. Consultant level are behind it in theory!"

"The more experienced, the better the response generally. Occasionally I have felt I had to prove myself. Some new SHOs think it's great to have experienced hands there with them."

"With enthusiasm on the whole, but I have occasionally have felt that junior and middle grade staff feel resentful of our accomplishments."

"Junior and middle grade staff have been very supportive throughout. Consultants less so. However they all seem more cautious now I have finished!"

"The medical staff have not accepted the role."

The medical staff working in neonatal care are obviously in a position to support the development of individual NNP students and to facilitate the development as a whole. Many have made the NNP students feel welcome in a professional sense, but their attitudes, at least as reflected back by NNPs, show a mixture of attitudes and some ambivalence. The

responses to questionnaires sent directly to the senior clinicians working in units with qualified NNPs seem to be more positive (see Chapter 8).

5.5 Health and well-being

At the end of the programme the NNP students were asked about their general health, days off sick and whether they had suffered from a number of illnesses and conditions during the course. Just over half (52%) described themselves as "fit and well", 43% as "mostly well and healthy" and a small proportion (5%) as "often feeling unwell". Three-quarters of the students had not taken any time off with illness in the previous three months and the average time off, estimated at 5.58 days over a twelve month period, was lower than that reported for neonatal nurses as a whole (Redshaw, Harris and Ingram, 1996).Though the physical health of the students was generally good, many were aware of the psychological pressures associated with undertaking this kind of programme and their own responses to these stresses.

"Most of it. The course has been stressful - beyond my usual ability to cope with work. This stress has been very personally disconcerting, resulting in a great loss of self esteem."

"The vivas were nerve-wracking to me personally. Taking the final viva (which was in the last week) whilst having to write a 15,000 word dissertation and finalise learning contracts, portfolio, clinical practice documents etc. was horrendous to say the least. After eleven enjoyable months, I almost cracked!"

"The sheer volume of work to try and assimilate was stressful. There were conflicts between the need to be at the unit for clinical experience and the need to be at home undisturbed swotting for exams. Trying to strike a balance and feeling wherever you are you should be somewhere else."

The majority (80%) reported themselves as having suffered from "anxiety or nerves" and more than a quarter (28%) from depression at some time during the programme. This reported incidence of anxiety and depression is substantially higher than the 20% anxiety and 10% depression found in among neonatal nurses as a whole in the course of a year (Redshaw, Harris and Ingram, 1996). Social support and the kind of networks available affect the ways in which individuals cope with occupational stress (Hingley and Cooper, 1986).

Can discuss difficulties at work	*%*	*Who gives you most support*	*%*
at work formally	46.7	work colleagues	26.7
at work informally	90.0	partner	62.5
at home	74.2	family	50.8
with friends	64.2	friends	35.0

Table 5.3 Sources of social support for students undertaking ENB A19 programmes (n=120)

The students were directly asked about their own sources of support (Table 5.3). They emphasised the important role of work colleagues, their partners and the family in discussing difficulties at work and in providing support at this time.

Students were asked at the mid-point and at the end of the course about how well they were coping with the programme (using a visual analogue scale). At the first of these time points 36% indicated that they were coping well or very well. The comparable figure for the end of the course was 53%. As one might expect half-way into the programme, with a great deal still to do, the students were less positive about how they were coping. A small number at both time points felt they were coping rather poorly. The students were also asked an open-ended question about which aspects of the programme they found most stressful. The responses to this question were reviewed and categorised thematically. The predominant themes and some of the relationships between them are shown in Figure 5.9.

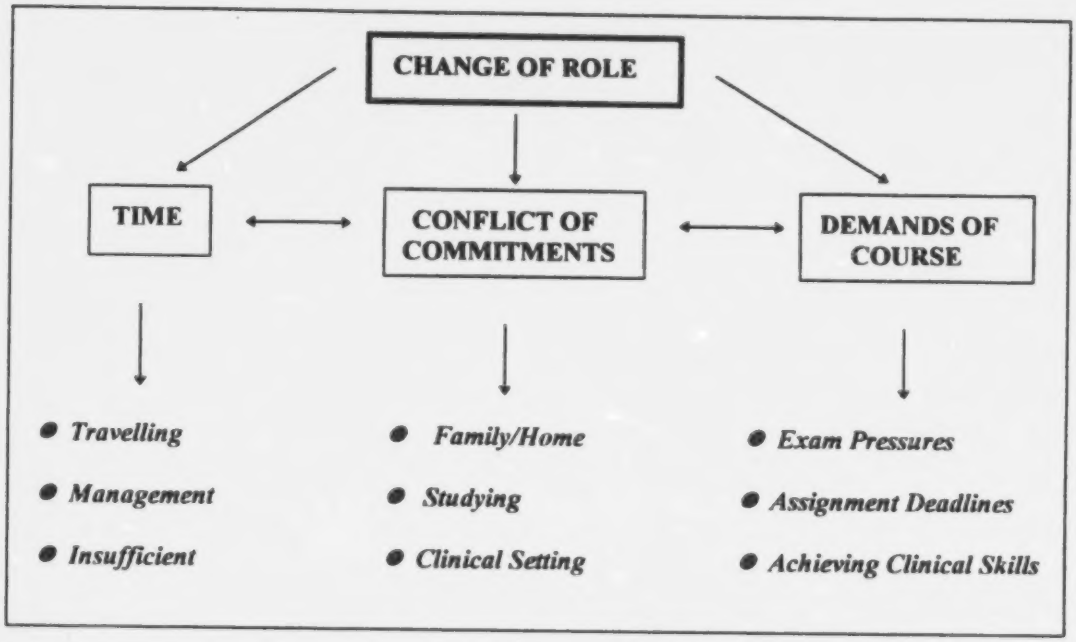


Figure 5.9 Aspects of educational programmes experienced as stressful by NNP students

Each of the three main themes, time, conflicts of commitments and the demands of the course can be interlinked and there may be reciprocal effects. Sub-themes associated with time include the following: travelling *"constantly travelling from pillar to post and having no base"*; time management *"balancing the time taken between clinical work and time to study theoretical aspects"* and insufficient time *"trying to fit everything in, wasting time on the M6"*.

Sub-themes relating to a conflict of commitment include family and home, *"coping with the family and meeting deadlines with assignments"*; studying *"juggling theoretical, clinical and family time"*, and clinical work, *"Feeling pressured to work 'nursing' shifts to help out desperate staffing levels - having to say no."*

Sub-themes relating to the demands of the course included exam pressures, *"doing a written exam I surprised myself about how stressful I found it"*; assignment deadlines *" trying to do assignments on time, not being able to take study leave, because of doing my job at the same time, and achieving clinical skills", " Continuing clinical practice. Wondering if I was meeting the 'standard'."*

Their own view of themselves and the ways in which undertaking the educational programme and becoming an NNP had changed them, was for some NNP students the most salient issue in terms of stress:

"From being competent and confident in previous role to being a student and feeling nervous and unsure in situations that normally would not have made me nervous."

"Adapting to full time student status and now readapting to clinical area !"

Students were also asked about what they had enjoyed. What was "best" and "worst" from their perspective is summarised in Figure 5.10.

BEST WORST

BEST	WORST
• ***PERSONAL ISSUES***	• ***PERSONAL ISSUES***
studying full time the challenge satisfaction	being away from home loss of confidence own expectations
• ***SOCIAL ISSUES***	• ***BASE UNIT ISSUES***
meeting others student support support and recognition from unit staff	lack of support isolation competing with medical staff
• ***TEACHING***	• ***PROGRAMME ISSUES***
high quality of lectures specific lectures/study days teaching in base unit	lack of guidance insufficient theoretical depth mixing level 3 and M level students poor communication from tutors assessment
EXPANDING KNOWLEDGE AND SKILL	*ISSUES OF IDENTITY AND ROLE TRANSITION*

Figure 5.10. A summary of the issues associated with the "best" and "worst" aspects of undertaking the educational programme

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The theme of mastery was a common positive response:

"A feeling of accomplishment when understanding the concepts and mastering new skills"

"Becoming proficient in new clinical skills and taking on new responsibilities"

"Participating in an educational programme that stretched my learning and skill."

They frequently referred to their new or expanded knowledge base, often seeing this as function of increased depth:

"Gaining a deeper knowledge of the pathophysiology of the ill neonate which now underpins "instinct" and what I had picked up along the way."

"Gaining in-depth knowledge about neonates particularly biochemistry, physiology etc."

Some NNP students delighted in the "freedom" to learn:

"Being totally supernumerary, I was given the time and space to learn and able to see alternative strategies employed to look after the babies- there is more than one right way."

"Being a full-time student, and being able to plan my own study time and clinical experience without worrying about pressure of work or off-duty."

Others relished their contact with their fellow students and the opportunities to see and hear about other neonatal units:

"Networking - exposure to different NNUs and consultants, allowing exchange of ideas."

"Most of all meeting NNPs from other units and exchanging ideas and information. Learning about the way other people do things."

5.6. Changing views and perceptions

The students were asked in a structured way about what they saw as constituents of the role at the outset and at the end of the programme. The responses (shown in Tables 5.4 a-c) are interesting in terms of their over all perceptions, but also in relation to the way the views may have changed over the programme.

In the area of patient care the views have changed relatively little. Being on-call for delivery suite and being involved in resuscitation, admitting infants to the neonatal unit and carrying out discharge examinations are given the highest priority. Seeing patients at follow-up clinics and accepting outside referrals were least likely to be seen as integral parts of the role.

Part of NNP role?	*Start (n=65)* %	*End (n=114)* %
Patient admission	80	85.1
Accept outside referrals	41.5	47.4
Examining newborns PNW	73.8	69.3
Discharge examinations	96.9	88.6
Follow-up clinic	18.5	8.8
On-call for delivery suite	78.5	81.6
Resuscitation at delivery	90.8	86.8
Emergency transfers	70.8	59.6

Table 5.4a Constituents of the NNP role as perceived by NNP students at the beginning and end of the programme: Patient care

Views about investigations (Table 5.4b) were also generally similar.

Part of NNP role?	*Start (n=65)* %	*End (n=114)* %
Ordering x-rays	95.4	88.6
Ordering other investigations	93.8	93.4
Prescribing infusion fluids	87.7	73.4
Prescribing medication	76.9	62.2
Taking a caseload	58.5	64.9
Presenting cases on ward round	96.9	94.5
Conducting ward rounds	29.2	53.4
Certifying death	30.8	18.4

Table 5.4b Constituents of the NNP role as perceived by NNP students at the beginning and end of the programme: Investigations and conventional medical activities

Prescribing was seen slightly less positively, though well over half the students at the end of the programme still thought this should be part of the NNP role. Taking a caseload and conducting ward rounds were seen as more significant elements at the end of the programme

than the beginning, perhaps reflecting the growing skills and confidence of the practitioners. (Only the first of these was significantly different, p=<0.05.) Certification of death was a duty that less than a third saw as a possible part of the role at the outset and the proportion was further reduced on completion.

Views of involvement in teaching, audit and research (Table 5.4.c) show little difference between NNP students embarking on and those completing a programme. All these activities are almost universally seen as a constituent of the role.

Part of NNP role?	*Start (n=65)* %	*End (n=114)* %
Teaching junior medical staff	86.2	84.2
Teaching nursing staff	100.00	97.4
Participating in audit	93.8	93.9
Involvement in research	98.5	89.5

Table 5.4c Constituents of the NNP role as perceived by NNP students at the beginning and end of the programme: Teaching and related activities

Using similar lists it will be possible to compare the views of students with those of qualified practitioners and with the clinicians working alongside them (see Chapter 6 and 8). The views put forward by students can also be compared with the kind of activities actually undertaken in practice (see Chapter 7).

At the end of the programme, using the statements in Table 5.5 student NNPs were asked about their view of the development as a whole. As the table shows there is a balanced response, between seeing it as an exciting professional or career development and the endorsement of the development as beneficial for patient care.

Statement : **View of the development as a whole**	*% agreement*
Progress in patient care	97.3
Challenging career option	91.2
Improve patient outcome	86.4
Improve staff morale	48.2
Reducing doctors workload	28.2
Best use of nurse time	17.3
Inappropriate professional development	3.6

Table 5.5 Students' attitudes on completing the programme (n=110)

Almost all the NNPs seem to see the development in this way with markedly less emphasis being placed on other aspects such as improving morale or reducing junior doctors' workload.

Similar views were expressed in their open-ended responses to being asked if they had any other comments they would like to make:

"I truly feel that NNPs are the future for neonates and their families. We will need to be flexible in our role and be prepared to change as more practitioners are trained. We need to regularly assess and evaluate our practice - to show and convince other health practitioners our value and not to be frightened or wary of change."

5.7. Educational programmes as agents for change

The educational process is one in which change is an integral part. While it is not surprising that the NNP graduates emerging from the programmes studied should themselves have changed substantially over the period of the course, they have also played an active part in educating other staff at all levels, within and beyond the neonatal unit. There are practical, professional and psychological difficulties and rewards in changing role, many of which continue into the post-programme phase. This is true for NNPs graduating from all of the four programmes studied. However, despite the difficulties, there does seem to be a group of practitioners emerging from these programmes who are perceptive and critical individuals, yet at the same time responsive. They may have been a highly selected and motivated group at the outset, however, they continue to ask relevant and critical questions, as did this NNP student at the end of her course:

"It is easy to just go and do a baby check, site a venflon etc. and to follow patients through is very rewarding as a nurse, but how you then do everything else expected of you as well ? I don't know! It's difficult to keep on taking things on board. There must be something to off-load, therefore, to make room. But do we then become a doctor's assistant or substitute? When does nursing stop? Is too much emphasis placed on who did or who should perform care? Becoming an NNP is exciting for neonatal nurses and has formalised for many what has been practised over the years."

Chapter 6 *The experience of qualified NNPs*

6.1 Looking back and looking forwards

Nurses and midwives qualified as neonatal nurse practitioners are currently employed in over sixty neonatal units as well as in other contexts. The data to be presented in this chapter will focus on their experiences and attitudes to the programme that they undertook, the role in practice, nurse practitioner relationships with other health care professionals and the ways in which this group of new health care workers has developed and begun to make a place for itself in the acute specialty of neonatal care.

The data used in this chapter mainly come from questionnaires and interviews with NNPs. (See Chapter 3 for details). A range of variables will be considered in examining the data including the type of unit in which practitioners are working, the different programmes of education and the length of time since qualifying.

6.2 Current employment

Of the group of 63 NNPs for whom questionnaire data are available 10 (16%) are not currently employed as NNPs. The type of unit in which those working as NNPs are using their skills in this role are shown in the table below. The posts seem fairly evenly distributed, though there are slightly greater numbers in regional and district units.

Type of Unit	*Regional*	*Subregional*	*District*	*Small District*
Number Working as NNPs	17	12	22	12
%	27	19	35	19

Table 6.1 Distribution of established NNPs (n=53)

The time since qualifying amongst this group and those who were interviewed ranged from just under a year to more than five years (Figure 6.1 below). The increasing numbers of NNPs on these programmes is reflected in the growing proportions shown.

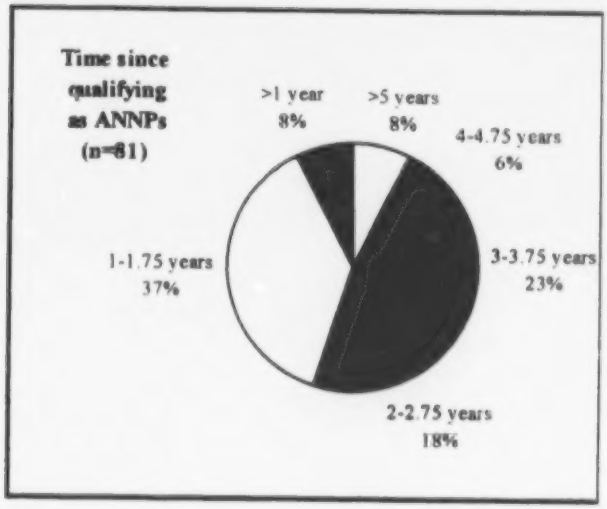

Figure 6.1 Time since completing NNP (ENB A19) programmes (n=81)

Using questionnaire and interview data from a total of 81 qualified NNPs contacted more than six months after the end of their course, it is clear that the majority are currently employed at H grade, with approximately a quarter at G grade and a small number above and below these points on the scale (Table 6.2)

Grade	*E*	*F*	*G*	*H*	*I*	*Other*	*Missing*
Number	1	5	19	42	4	2	8
%	1	7	27	59	6	-	-

Table 6.2 Grades at which NNPs are employed currently (n=81)

The stages at which these grades were achieved varied considerably (Table 6.3) and while not all those completing programmes went on to work as an NNP, some were functioning in the role without the recognition that comes with a change of grade or salary scale.

	Grade Change	
Proportion change (n = 71 responses)	69%	
Timing of change (n=49 of changes)	mean (months)	4.8
	median (months)	5
	range (months)	0 - 30

Table 6.3. Change in grade following completion of the NNP (ENB A19) course

Of those graduates from the programme who changed grade, a proportion achieved this immediately on their return (24%) and most (88%) had done so within six months of finishing the course. No relationship was found with unit type.

6.3 Education from a longer term perspective

In reflecting on the programmes of education that they had undertaken, NNPs were asked about their experience using both structured and open-ended questions. Using 14 statements that exemplified some of the views expressed in the exploratory study undertaken earlier (Redshaw and Harris, 1995), the respondents were asked whether they agreed, disagreed or neither of these things.

	Statement	% agreement
The course	the course prepared me very well for the role of NNP	42.6
	learning together as a group was important	68.8
	the level of teaching was sometimes inappropriate	52.5
	the knowledge base I gained was most valuable	85.3
	nothing could really prepare us for the real thing	47.5
Clinical teaching		
	greater supervision was needed early on	52.5
	a longer probationary period was needed	29.5
	more teaching was needed in a clinical context	62.3
	the role of the registrar was critical for clinical teaching	60.7
	more time was needed to consolidate clinical skills	41.0
	the range of skills taught was too narrow	11.5
The home unit	more support was needed in the home unit	37.7
	nurse colleagues did not understand the nature of the course	52.5
	supernumerary status was not effective	21.3

Table 6.4 Education and training for the role of neonatal nurse practitioner (n=59 NNPs)

While substantial proportions of NNPs valued the knowledge base they had gained and the way in which they had learned together as a group, they were not uncritical. Less then half thought that the course had prepared them very well for the role of NNP, and more than half

agreed that the level of teaching was sometimes inappropriate. With regard to clinical aspects of the teaching, over half of the NNPs felt that more was needed in a clinical context, that greater supervision was required early on and that the role of the registrar was critical in relation to teaching in the clinical area. As far as the home or seconding unit was concerned over a third felt that more support was needed there and more than half said that their nurse colleagues had not understood the kind of course that the NNP was undertaking.

While not all the respondents were of the same view or had the same experience, it is of interest that between 20% and 30% felt more time was needed to consolidate skills, that a longer probationary period was required and that supernumerary status in the home unit had not been effective. No differences were found in relation to the specific programmes of preparation with any of the points listed.

Specific questions were asked in relation to a probationary period following the course. Just over two-thirds of NNPs (68%) described themselves as having an "apprenticeship" or probationary period in which they were expected to consolidate the skills and learning they had undertaken in the course of the programme. The table below shows the details and variation in this aspect of their education.

Probationary period	*mean (months)*	*median (months)*	*range (months)*
Planned (n=50)	3.92	4	1 - 12
Actual (n=45)	4.44	3	1 or < - 18

Table 6. 5 Duration of probationary or apprenticeship periods following completion of the (ENB A19) programme.

The benefits of such a settling down period have been recognised and yet those described ranged considerably in their length and in the extent to which what was planned actually came about. While the majority (71%) were as planned, a proportion (22%) were reduced and a small number increased. Those that were reduced were associated with NNPs working in district or small district units (9 out of 10) and those that were increased were associated with regional or subregional units (3 out of 3). The perceived or actual need for probationary periods may have been different in the units where this took place, possibly linked with staffing levels, or it may have reflected on the skills of the particular NNP. However, the examples of a six month period reduced to less than a week and of others being cut by half are not what was recommended by the programme co-ordinators or what was envisaged by the NNPs themselves.

When asked directly about the ways in which they felt the course had prepared them the NNPs responded slightly differently (Table 6.6). More than a third said that the course did not prepare them. Of those responding in this way a slightly greater proportion were working in district or small district units rather than the larger centres. The converse was found with those that felt they had been prepared well. Examination of the negative responses by course was less clear, with some NNPs from each of the four courses feeling they had not been adequately prepared for practice as an NNP. As with the responses to the more structured

question previously shown, some NNPs emphasised the value of gaining "in depth knowledge" and increased levels of skill, the importance of good teaching and supervision and the need for more input in relation to changing roles.

Rank	*Responses to a question about the ways in which the course had prepared the NNPs*	*%*
1	Not prepared	39.0
2	Prepared well	33.9
3	Increased theoretical knowledge and skill	27.1
4	Longer course needed	8.5
	Insufficient on transition to role	8.5
	Better support needed in home unit	8.5

Table 6.6 Attitude to course preparation (n = 59)

6.4 Maintenance of skills and continuing education

The issue of competence and maintenance of skills is a critical one in terms of patient care and education for practice. As Table 6.7 shows, two-thirds of the NNPs reported that they had maintained the skills acquired during the course, but a third had only maintained some of these. This may be a function of differing roles, but the type of unit seems to play a part, with more than half of those working in the district or small district units being less likely to have maintained the skills acquired on the course. This raises the educational issue of how the skills associated with this role may be maintained and the practical issue of what is expected and required as individual practitioners move from post to post. The same issues arise in medical education and professional development.

Aspects of continuing education	*%*
maintained skill	65.6
maintained some skills only	34.4
maintained skills by working in another unit	18.3
participated in continuing education as neonatal nurse practitioners	75.4
attended study days	63.9
participated in further education formally	54.1

Table 6.7 Continuing education following completion of the ENB A19 (n = 61)

As was pointed out in Chapter 4, not all ENB A19 courses support a programme of continuing education. The question of responsibility following course completion is seen as that of the individual NNP in complying with PREP requirements (UKCC, 1992). However, the institutions and course organisers responsible for these educational programmes are perhaps in the best position to initiate and facilitate this part of the development.

Despite the relative isolation that is commonly felt once in practice, many NNPs had benefited from the formal sessions organised by course leaders from the most established programme. A small proportion of NNPs had spent time in other units, renewing or maintaining their skills, and more than half had attended other study days. However, among the latter group there was concern about the kind of topics relevant to NNPs, the level of the presentations and of the information provided. The need to continue their formal education and to consolidate and further develop their knowledge base was recognised by many (including those from the earliest courses needing to complete further modules to obtain a degree). This is evident from the numbers currently involved in further education. (Table 6.7 above).

The NNPs were also asked in retrospect whether they were glad they had undertaken the course and which course they would recommend. A large proportion make a positive response (85%), however, only 61% would recommend the course that they had actually undertaken. The remainder were not sure, made equivocal responses or did not respond to this question. There were differences between the graduates from each ENB A19 programme, with some courses being seen more positively than others.

6.5. Attitudes towards the role of the NNP

Questionnaire and interview data based on a structured and open-ended questions are used to address this area of the study and quotations from individuals will be used to illuminate specific points.

Perceptions of the role and working as an NNP varied, but there are commonalities as shown in Table 6.8. In response to an open-ended question about what they saw as the key aspects of their role as an NNP, the practising NNPs were almost unanimous in referring to the provision of high quality clinical care:

"Being on the spot to assess the clinical condition of sick neonates and able to implement appropriate action immediately."

" Maintaining standards of quality care delivery to the patients, by being a practical resource for nurses and medical staff."

"Ensuring optimum care is provided to each baby on SCBU."

Rank	Key aspects	%
1	Providing high quality clinical care	98.1
2	Teaching and supporting nurses and SHOs	45.3
3	Autonomy	20.8
4	Working as a member of a team	11.3
	Being a role model	11.3
	Communicating with parents	11.3

Table 6. 8 Key aspects of the job (n = 53 practising NNPs)

Just under half referred to their role in teaching and supporting the learning of nursing and medical staff. For these NNPs a key aspect of their role is:

"Education - improving clinical standards and quality of care."

"Teaching and supporting SHOs when new, dealing with very sick very preterm infants until SHO/Registrars are competent to do so. Teaching of nursing staff to increase knowledge base, improve evidence-based practise and raise standards."

"Supervising SHO in clinical procedures, teaching nurses aspects of neonatal care and orientating new staff, clinical teaching."

A fifth of the NNPs emphasised having an autonomous role:

"Decision making about management of neonates on a day-to-day basis"

"Autonomy in clinical practice, increased responsibility and decision-making"

"Being able to carry out immediate intervention and stabilisation of the sick neonate".

Smaller proportions referred to the way in which medical and nursing roles had merged, often with the NNP being a communication channel between these two groups of professionals and parents. Some emphasised the benefits of working in a multi-disciplinary team and others saw themselves as a role model.

When asked about their own responses to becoming an NNP the answers were varied: a third were categorised as negative or critical, half were qualified in some way and less than a fifth were unequivocally positive (Table 6.9).

Responses to becoming a neonatal nurse practitioner (n=55)	%	*Perceptions of the development as a whole (n=45)*	%
Positive	14.6	**Positive**	33.3
Qualified or variable	50.9	**Qualified or variable**	45.7
Negative or critical	34.5	**Negative or critical**	31.1

Table 6. 9 Attitudes to becoming an NNP and to the development as a whole

The actual responses from the NNPs themselves illustrate the mixture of feelings involved:

"It has been a very disappointing experience and I have had many obstacles to contend with"

"I feel it is one step too far. I initially enjoyed the job, but strongly believe unless it is made more than an SHO role it has a shelf life of only a few years."

"I am angry that this unit sent, not one, but two of us to do the course without knowing if or how they wished to utilise our skills."

"Found it very difficult initially when role was divided and not defined. It is easier now and I am beginning to feel more valued!"

"Isolation at first. I gradually gained confidence in myself. Acceptance of others grew as they also gained confidence in our ability and judgement"

"I love my job. I certainly would not want to be nursing still."

"It was personally enhancing. Totally positive for neonates."

A similar open-ended question was used to determine how NNPs, now some distance on from the beginning of the development, now saw it as a whole. In this respect attitudes were a little more positive, though many NNPs had considerable concerns. The ambivalence is evident in their open-ended responses:

"I remain sceptical about how well thought-out most NNP jobs are. I believe NNPs have a lot to offer neonatal care, but the broader issues are not being addressed."

"A needed role, but requires agreement from UKCC so all the courses produce ANNPs with the basic requirements and at the same level."

"A good idea, but no professional forethought, consensus or planning given to the development and implementation."

Nevertheless there are many positive aspects to the job and of those who had been NNPs, more than three-quarters said they still wished to work as a neonatal nurse practitioner (Table 6.10). At the same time many had thought about other posts within and outside neonatal care and a proportion had applied for a nurse practitioner job in another unit.

Working as an neonatal nurse practitioner	%
Will continue to work as a NNP	80.0
Have thought about non-NNP jobs	41.8
Have looked for a post outside neonatal care	25.5
Have applied for an NP job on another unit	16.4

Table 6.10 Attitudes to working as a neonatal nurse practitioner (n=55)

Where the role was unclear, often with little in the way of a job description, where support was limited or variable and professional recognition seemed slow in coming, NNPs felt it appropriate to change posts. In both the interview and questionnaire responses practitioners who had moved contrasted the situations in the different units. A perceived failure to support and reward them appropriately for having undertaken this intensive programme was the main justification for contemplating or applying for new posts.

When asked explicitly about their immediate or current goals as an NNP they responded in a variety of ways. (Table 6.11)

Rank	*Immediate or current goals*	*%*
1	Development of own post	36.1
2	Obtain further education	27.9
3	Consolidate skills	19.7
4	Support ANNP development	14.8
5	Focus on personal development	13.1

Table 6.11 Immediate or current goals for neonatal nurse practitioners (n=61)

The most common response was to develop their own post in their present unit:

"To try to get the role sorted out to suit both myself and my colleagues."

"Consolidate my existing post and hopefully branch out to do specific skills and move on"

"To define and settle into my role as NNP. Enlighten nurses, parents and the multi-disciplinary team about the role"

Obtaining further education and consolidating the skills and abilities acquired on the course were priorities for some:

"Obtain MSc. Get an article published"

"To be able to perform and 'read' head ultra-sound scans. To generally update theoretical knowledge and continue to improve my clinical skills."

"To finish my degree, undertake the PALS course and then devise a training programme for the core midwives on labour ward for resus.".

Others focused either on their own personal development in a broad sense or the wish to be involved in the development of neonatal nurse practitioner teams.

"To make a success of running my own nursery and caseload of babies."

"Encourage more ANNPs on the unit and have it ANNP led!"

When asked about longer term career plans and professional development the NNPs' did not appear to be looking very far forward. The responses to this question overlapped with their more immediate concerns: some referred to gaining academic qualifications (21%), others to their own personal development (18%). Though some NNPs were planning to change jobs and move to another unit (23%), nearly a third (30%) responded with "not sure" or "none".

The NNPs were asked about what they saw as factors supportive of the development of practice by this new professional group and those that they considered detrimental to the implementation of the role. The most common "barriers" and "facilitating factors" are listed in Tables 6.12a and 6.12b

Rank	***Barriers to Practice***	%
1	Lack of acceptance	45.1
2	Legal prescribing	23.5
3	Shortages of nursing staff	15.7
4	Relationships with medical staff	13.7
5	Salary scales and career progression	11.8

Table 6.12a Perceived barriers to practice (n = 51 practising NNPs)

Lack of acceptance by fellow health professionals, particularly medical and nursing staff in the neonatal unit, was the most frequently described barrier:

"Our nursing colleagues (sadly)"

"Consultants and nurse managers resistant to change"

"Antagonistic fellow health care professionals"

The issue of prescribing was specifically mentioned as an obstacle:

"Red tape and prescribing"

"Government's inability to clarify the prescribing guidelines"

"Discussions and arguments regarding prescribing"

Staff shortages and the need for NNPs to work as nurses, as they had previously, was also mentioned as a negative factor in relation to practising as an NNP. However, at the same time a supportive attitude on the part of the same staff groups made an enormous difference to the successful adjustment of individual practitioners to their new role.

Rank	*Factors facilitating practice*	%
1	Positive staff attitudes	57.4
2	Own determination	12.8
3	The support of other NNPs	8.5
	Changes related to junior doctor training	8.5

Table 6.12b Perceived factors that facilitate practice (n = 47 practising NNPs)

Thus the NNPs described this kind of facilitating factor as:

"The faith and trust shown to us by our colleagues"

"Supportive consultants, nurse management, nurses and midwives"

"Encouragement and support from nursing management".

While many of the NNPs valued the support of colleagues enormously, not everyone felt this way. A small number said there were no facilitating factors:

"None - every step has been a struggle and only my own and ANNP colleagues' perseverance means I'm still here."

6.6. Perceptions of the role

In the course of the previous exploratory study (Redshaw and Harris, 1995), the way in which the role of the NNP was seen by the different professional groups working alongside the NNPs in neonatal care was investigated in a fairly concrete way. The respondents, who also included the qualified NNPs at the time, were asked about activities that they considered should be part of the new role. The same method, using a list with graded responses, was employed in the present study with the NNPs who were interviewed and those sent questionnaires. The responses are shown in tables 6.13a-c.

6.6.1 Patient Care

The aspects of patient care that the NNPs saw as most important were being on-call for delivery suite, responsibility for resuscitation at delivery, taking charge of emergency transfers, carrying out discharge examinations, deciding on patient admission and providing holistic family care (Table 6.13a). Apart from the last of these, all the activities mentioned seem to be associated with decision-making and emergency care. Seeing patients at follow-up clinics, accepting outside referrals, activities usually carried out by medical staff, were less often seen as appropriate, as were the more traditional nursing tasks of providing routine care and that associated with bereavement.

Activities	*% agreement*	*a great deal*	*to some extent*	*perhaps*	*not at all*
Decide on Patient Admission		68.0	25.6	6.4	0
Accept Outside Referrals		20.3	46.8	26.6	6.3
Plan Discharge		63.3	32.9	3.8	0
Examining Newborns on Postnatal Ward		37.2	33.3	15.4	14.1
Carry Out Discharge Examinations		67.1	25.3	3.8	3.8
See Patients at Follow-Up Clinic		6.4	11.5	59.0	23.1
Be On-Call for Delivery Suite		81.0	11.4	5.1	2.5
Responsible for Resuscitation at Delivery		83.5	12.7	2.5	1.3
Take Charge of Emergency Transfer		70.9	24.1	5.1	0
Holistic Family Care		78.2	19.2	2.6	0
Routine Nursing Care		40.5	36.7	13.9	8.9
Bereavement Care and Follow-Up		41.8	34.2	22.8	1.3

Table 6.13a. Constituents of the role of the neonatal nurse practitioner 1 : Patient Care
(n = 81 qualified NNPs)

6.6.2 Investigations and related activities

Ordering X-rays and other investigations and prescribing have commonly been seen as the preserve of medical staff. However, with the introduction of NNPs attitudes are changing. and many of the activities listed in Table 6.13b are seen as significant elements of the role.

Prescribing is seen as a particularly important activity, as is being able to order investigations. Both of these aspects of the role are associated with recognising patient needs or requirements and being able to respond to them with appropriate action. At the same time they are also associated with interfacing with other health care workers from different professions. (The NNPs' experiences in working with other professional groups is discussed from their perspective in section 6.7 and from the perspective of the other professionals in Chapter 8.) While presenting cases on a ward round is seen as highly appropriate for NNPs, actually taking responsibility for conducting the ward round is not seen in the same light.

Activities	*% agreement*	*a great deal*	*to some extent*	*perhaps*	*not at all*
Order X-rays		86.1	12.7	1.3	0
Order Other Investigations		86.1	13.9	0	0
Prescribe Infusion Fluids		77.2	17.7	5.1	0
Prescribe Blood and Blood Products		69.6	17.7	11.4	1.3
Prescribe and Order TPN		61.1	19.5	13.0	6.5
Prescribe Medication		68.0	19.2	10.3	2.6
Take a Case-load		41.8	32.9	19.0	6.3
Present Cases on a Ward Round		82.3	16.5	1.3	0
Conduct a Ward Round		40.5	35.4	17.7	6.3
Certify Death		16.0	13.3	38.7	32.0

Table 6.13b Constituents of the role of the neonatal nurse practitioner 2 : Investigations and conventional medical activities (n = 81 qualified NNPs)

6.6.3 Teaching and Management

Substantial proportions of NNPs see teaching nursing and junior medical staff as major constituents of their role, both formally and informally (Table 6.13c). In contrast, unit management is not seen as an activity in which NNPs should be involved. Activities more directly associated with monitoring and improving clinical care, for example developing and writing protocols, standard-setting and participating in audit activities, are seen as an integral

element of the role by the majority of practitioners. This seems appropriate given the emphasis placed on these aspects in the programmes of education and in relation to the implementation of clinical governance activities such as risk management.

Activities	*% agreement*	*a great deal*	*to some extent*	*perhaps*	*not at all*
Teach Junior Doctors	**- informally**	79.7	19.0	1.3	0
	- formally	59.5	27.8	11.4	1.3
Teach Nurses	**- informally**	91.0	9.0	0	0
	- formally	87.2	12.8	0	0
Unit Management		7.7	28.2	28.2	35.9
Undertake Quality Assurance		45.6	38.0	13.9	2.5
Set Standards of Care		62.8	33.3	3.8	0
Develop and Write Protocols		75.9	24.1	0	0
Participate in Audit		72.2	25.3	2.5	0
Undertake Research		66.2	24.7	9.1	0

Table 6.13c. Constituents of the role of the neonatal nurse practitioner 3 : Teaching, management and related activities (n=81 qualified NNPs)

6.6.4 The effects of experience and the types of unit

The data concerning the constituents of the role are largely similar to those reported in the exploratory study (Redshaw and Harris, 1995). It seems that perceptions of the key activities have changed little over the five year period. Even when the data were examined in relation to the experience NNPs had gained since completing the course (using time since qualified as the variable), there were no significant differences. More experienced NNPs were no more likely to be positive about accepting outside referrals, conducting ward rounds, or about prescribing than those more recently qualified.

The views of those working in different types of unit were also largely similar. NNPs in regional centres were slightly less likely to see their role as one which should include deciding on patient admissions, accepting outside referrals, carrying out examination of the newborn on the postnatal wards, routine nursing care and unit management. Prescribing infusion fluids, blood and blood products and medication were seen as part of their role by NNPs working in all types of unit, but in the smaller district units where the use of TPN is less common, calculating and ordering it was less likely to be seen as part of their job.

The views that NNPs have about their role and the activities that should be undertaken provides some information about what they are likely to be doing and insights into what they might wish to undertake, given the opportunity. In the next chapter the data reflect practice more directly.

6.7. Relationships with other professional groups

Using open-ended questions the NNPs were asked about their professional relationships with the doctors and nurses working alongside them in the neonatal unit. The responses which were categorised as positive, positive but qualified in some way, negative or critical are shown in Figure 6.2.

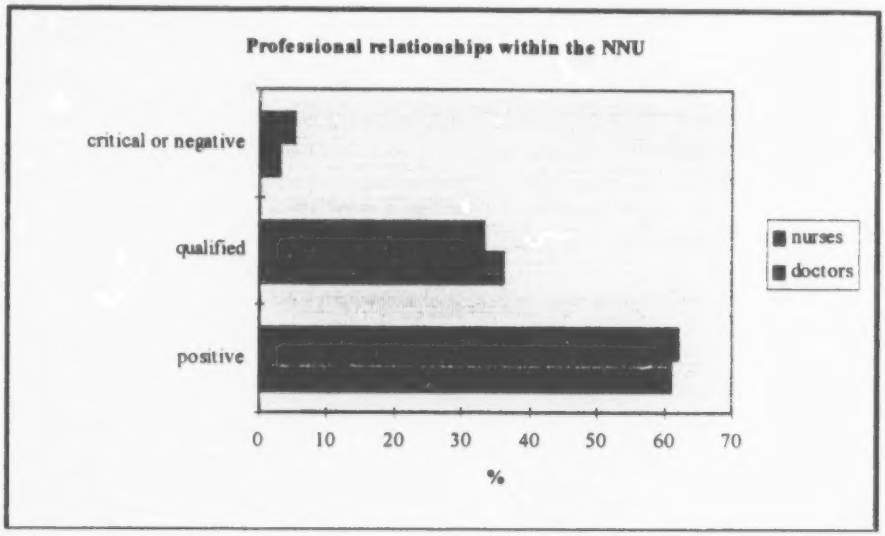

Figure 6.2 Neonatal nurse practitioner views of relationships with nursing and medical staff in the neonatal unit (n=64 practising NNPs)

It seems that relationships with both groups are described positively by approximately 60% of NNPs, with a further third making qualified statements about their colleagues. No differences were found in relation to unit type or time since qualified.

Examples of the different kinds of responses made concerning nurses illustrate a range of issues:

"Excellent with most! A lot of nurses feel that because of our nursing background we're more willing to listen to them."

"We work together as team members, providing training, supervision and support".

"Usually excellent. Occasionally conflict, usually in stressful situations, but on the whole good."

"Some feel they have lost a senior nurse to the 'medical' side."

"Little friction now but many senior staff feel they could do much of the daily work without training."

"They are confused about our role and can feel resentful when busy that we are not available for nursing care"

" There is a lack of understanding about role. Certain staff undermine my capabilities. I was previously respected as Sister and the role transition has been difficult"

The difficulties with other nurses seem to be associated with two specific issues. The first of these is that of staff shortages and the need for experienced neonatal nurses and the second concerns the negative attitude of other nurses towards the development as a whole and individual NNPs in particular.

The nature of relationships with medical staff is illustrated in the examples below:

"Very good. We are held in respect. Occasionally a problem with SHO not coping with ex-Nurse doing SHO duty, but very rare."

"Excellent working relationship. I feel that I'm valued by doctors at all levels"

"Variable – depending on individuals. Usually very good rapport. Support and respect from the registrar, but SHOs do vary. Consultants are consistently supportive and value the NNP role."

"Many doctors (especially junior) view the NNP role highly and rely on the expertise of the NNP."

"Good relationship with Registrars. They offer good support and teaching although they need to be reminded that sometimes we need to practise clinical skills. SHOs sometimes think that we are there to do their menial tasks, but are usually easily corrected."

That many NNPs feel their skills and abilities are recognised and valued by the nurses and medical staff seems critical to both their confidence and self-esteem and to them feeling a significant and effective member of a team caring for infants and their families. This practitioner described her view of the relationships simply and clearly:

"Both doctors and nurses appear to respect the NNPs and their ability on the unit. The doctors rely on the NNPs in order to provide adequate cover medically. The nurses realise that the NNPs have a job to do and seem to be surprised and grateful if NNPs help them. The relationship seems to be relaxed and easy."

Outside the neonatal unit professional relationships are seen in a similarly positive light. (Figure 6.3) Day-to-day contact is less common with the other departments and individuals with whom the NNPs interact. Relationships, apart from those with the midwives and obstetricians are not so likely to be face-to-face, most of the time relying on the telephone and documentary forms of communication.

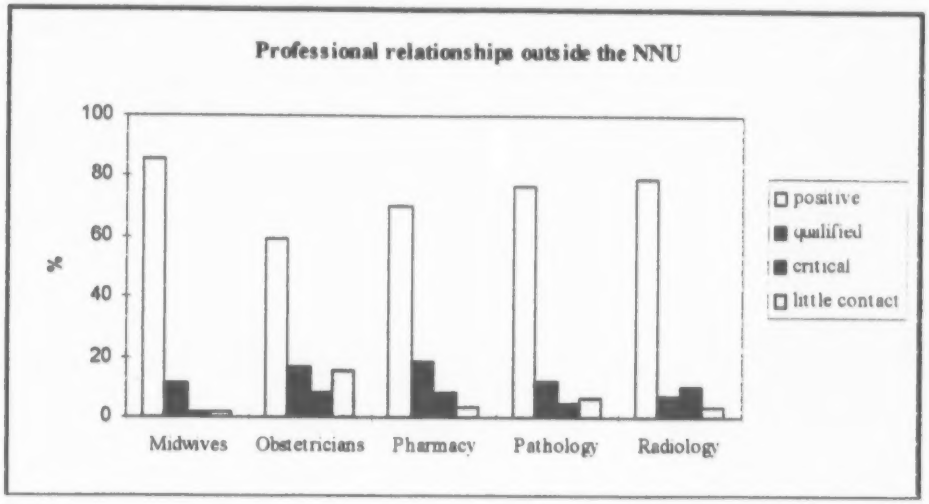

Figure 6.3 Nurse practitioner views of relationships with health care staff outside the neonatal unit (n=64 practising NNPs)

Many NNPs referred to the way that relationships had changed over time and emphasised that there had been changes in those that had been problematic or difficult in some way. Again, an appreciation and understanding of their role and the education underpinning it seem to be important from the NNPs' perspective. There are references in their responses to adjustment on both sides and the benefits of working together and using each other's skills to improve patient management and care. Responses describing their relationships with midwives included the following:

"Mutual respect shown both ways. Vast majority of midwives have stated they prefer to have an NNP at an at-risk delivery."

"Good. They are happy for us to be called to labour ward, they like the resuscitation lectures we give. They feel they get good advice when they ask us to see babies on the wards."

"Very good. Would rather have an ANNP to review baby than SHO."

"The midwives appreciate my resuscitation and 'baby checking' skills. Improved liaison with NNU."

"POOR. They remain intransigent about the issue of ANNPs attending labour ward. They are opposed, quoting 'midwives rules' about summoning medical help."

Some NNPs had little contact with obstetric medical staff: they referred to *"minimal communications"*, *"fleeting contact, rarely do they communicate with us"* and *"Don't know I exist"*. Others described the relationship as "*getting better, as they are more aware of my role"* and *"slowly building a relationship"*. They were more likely than any of the other groups to elicit a response indicating limited or no contact. At least one NNP thought that the obstetricians *"don't think we are any good"* and another found them *"very variable"* and felt that the relationship was *"dependent on personalities"*. However, other NNPs described them as being *"friendly and helpful"*, appreciated them *"asking for input re preterm deliveries"* and many positive aspects to this relationship were detailed some of which are exemplified in the example below:

"Excellent - now they know what I'm doing. I recently attended an EM LSCS for a flat trace. The consultant obstetrician asked for a paediatric registrar. - when she saw I was attending she changed her mind, and apologised after for seeming to doubt my abilities - very heartening! (the baby was fine!)."

The issue of safety and risk management seem to be factors in the NNPs' relationships with the departments providing technical services. The issue of prescribing is one that has clearly affected relationships between NNPs and pharmacy departments. The NNPs describe "problems, mostly due to the prescribing issue", but they also describe many positive aspects to the relationship

"Good exchange of communication and information re. drug dosages/changes etc."

"A very good relationship. The chief pharmacist is supporting our attempts to get nurse prescribing tackled locally"

"Initial concerns about prescribing, now resolved. No problems now"

"I am working in conjunction with Pharmacy to develop protocols"

"The relationship is mostly good, though some pharmacy technicians have given me a hard time!"

"Very good relationship, now protocols are in place - a gentle reminder occasionally that I'm writing up things I shouldn't."

It seems that relationships have, and still are being negotiated, though the question of NNPs' "prescribing" is one that is being responded to in different ways. Working together on protocols and using the pharmacy department as a resource and as an aid to the development of information and teaching materials is one of the constructive ways forward at this time.

Relationships with pathology, microbiology, and radiology department staff have developed in a similar way. Initially such staff need to be made aware of the NNPs, their role and training and then to get to know the individual NNPs with whom they will come in contact. Many will simply be used to working with medical staff and have expectations of continuing to do so. When there are effective lines of communication, NNPs describe:

"A good relationship with pathology microbiology, able to approach them for advice"

"They are happy to communicate with us rather than insisting on speaking to a doctor."

However in trying to order x-rays some NNPs describe difficulties:

"Radiology do not recognise an ANNP as able to order x-rays"

"They are very reluctant to allow me to order x-rays."

"The radiologists are still not prepared to allow NNPs to order x-rays as diagnosis may follow, but we are working together to produce protocols."

Nevertheless this is not everyone's experience:

"There is a good relationship with the radiology department. They feel we give more information about why x-rays/scans are ordered and provide previous films for them."

Common themes can be seen in these responses to a wide range of health care workers with whom NNPs liaise, some of which overlap with those arising in working relationships within the neonatal unit. As might be expected, relationships have developed and changed over time. Mutual respect and understanding seem to be essential elements in the process if other professionals are to have confidence in this new professional group. These come from meeting and working with the NNPs and seem vital in accepting them as members of the team jointly caring for infants and their families, together with those staff who have conventionally worked in maternity and neonatal care. Many of the NNPs recognise the progress that has been made:

"I have been an ANNP almost 4 years. Initially people outside NICU didn't know what I was or did, a lot of hard work has improved things. People now respect the role and have confidence in ANNPs."

6.8. The experience of non-practising neonatal nurse practitioners

Data from the interviews carried out with non-practising NNPs and questionnaire data from NNPs, also not practising, have been used to review the issues for these individuals and to examine the web of factors involved. As experienced neonatal nurses who were sufficiently motivated to undertake quite a long and intensive post-registration course in the specialty, to complete it and to graduate, it is critical to examine their experiences and decisions. Not practising may be seen as a personal failure, but also as a failure of the institution: these NNPs may not have been the "right" people, but the situations in which they found themselves may not have been "right" either. Those responsible for selection, education, training and support in and beyond the neonatal unit may also have contributed.

Of the eighteen non-practising NNPs less than half (8 out the 18) had practised as an NNP since completing the course. For many of these NNPs what was expected of them as they

returned to their home units was unclear and if job descriptions were available, they were likely to lack definition or to be modified with little consultation with the NNPs themselves.

"I wasn't promised a job at the end of the course, but "hoped" it would follow format of previous NNP's role (since left). The job description was constantly changing and there were differences between the opinions of the Consultants, the Unit Manager, the Director of Nursing and myself as to what my role should be. In the end the job description was delivered to me as a "fait a complis"."

"I had to apply for NNP post when I completed the course. I had major concerns re: the expectations of others as to the role. Kept querying the job description but got no answers, was told to discuss concerns in the interview. I felt that the job description was too vague and open-ended, Was told to "like it or lump it" so turned down the offer of the post and reverted to my previous role."

Responses to completing the course, but not moving on to use the skills and abilities they had developed was of concern to most NNPs in this situation:

"It seemed like a lot of effort when you felt it was for nothing."

"Absolute waste of time, money and resources"

"Friends commented that they didn't understand how you could do such an intensive course with nothing at the end of it"

Feelings about not practising varied, some were angry and most were regretful to some extent:

"If you'd asked me this a year ago I would have burst into tears"

"At times sad, a waste of training, disappointed didn't work out, I wouldn't have done the course in the first place if had known the problems I'd encounter"

"I know it was the right decision for me. Tinges of regret when I see things not done as well as they could be."

"It took a huge part of my life - two years studying. I enjoyed learning and being a student. It taught me what my limitations were and made me realise the responsibility may have been too much for me and I acknowledge that."

"A little bit sad", it would have been nice to have kept my hand in but wasn't practical "If you'd asked me if I'd like to take being an NNP up again, I'd say not on your life!""

A few were waiting for the right opportunity to use their skills and to work in the sort way that they had originally imagined:

"After two years of not practising the present situation is improving. Initially it was very disillusioning but have I tried to remain positive. There is a lot to do and the role is still uncertain."

Most intended to continue working in the health service, but only a third (6 of the 18) thought they might practise as NNPs.

The responses to a question about the reasons for not practising are shown in Table 6.14. Dominant among these responses were the post not meeting their expectations, their personal and professional support needs not being met, conflicts associated with the expectations and demands of others and a lack of recognition by other health professionals. These issues are also amongst those raised by practising NNPs, however amongst this group the sheer number and weight of issues seems to have been greater. A small proportion have changed their career plans and so may see their experience in becoming an NNP as a constructive one which they are utilising in a more general sense. At the same time these changes may have been a response to the kind of difficulties experienced by the group as a whole.

Issue	*Reasons for not practising*	*Number*
Mismatch with expectations	professional support needs not met	12
	personal support needs not met	14
	post not meeting own expectations	15
	post not as described by med/nursing management	7
Conflict	conflict of nursing and medical expectations	9
	expectations and demands of others	10
Recognition of role	lack of professional recognition	9
	the difficulties in trying to develop new role	8
	lack of financial recognition	8
Risk	concern about accountability	4
	fear of litigation	3
Balance of nursing and medical care	reduced / absence of involvement in nursing care	3
	would like to work differently: more medical / more nursing	7
Career	change of career plans	7
	taking a career break	2

Table 6.14 Reasons for not practising as an NNP (n=18)

In response to qualifying as an NNP one expressed the double-sided nature of the experience and the subsequent feelings of having been let down:

"Part of me was scared stiff, the other part felt euphoric. I felt the weight of accountability squarely on my shoulders. I was disappointed that role didn't become established in the way I wanted. I was patient initially and accepted having to take the "softly softly" approach. 3 - 5 months later when things still not sorted and I was working very hard combining two roles for the same money as other G grades I felt demoralised, especially as everyone else seemed happy with the situation."

There is a sense, which came from the interviews and questionnaires and the language used, that these non-practising NNPs had to come to terms with feeling that they had let other people down. Those "let down" included the medical and nursing staff who had mentored and supported them and their family and friends who had been so important during and after the course. There is also a feeling that undertaking this kind of programme was at quite a cost in personal terms which may appear to have been wasted if the NNP does not practise. Despite this, many now feel they are using the skills and knowledge they acquired to enrich their nursing in a wider sense.

When asked if they thought the role of the NNP was a viable one the majority of non-practising NNPs (14 of the 18) responded positively, though some made qualified responses:

"Yes, but needs to be right, increasingly essential with registrars with decreasing levels of experience. In a smaller unit without registrar cover the role is essential"

"Yes, especially as the speciality becomes more technical and more is expected of nurses"

"Yes - if it adapts to suit the situation, but the name will change a thousand times"

In general is seems that the experience of those NNPs not practising has been a difficult one: dealing with their own feelings, the sometimes judgmental attitudes of others, and for some regaining their confidence in themselves. While some individuals may not have been suited to the role and others may now have chosen a different career path, there are those with the qualification who are looking forward to returning or getting into practice fully for the first time. Efforts to retain this group and maximise on the use of the knowledge and skills they have acquired may have a long term pay-off in neonatal care. However, effective job descriptions, recognition of the role, adequate support and good communication between the professional groups involved are essential if the investment is to be realised.

6.9 Viability of the role

Of the whole population of qualified NNPs asked about the viability of the role approximately three-quarters (74%) were positive about the role and the future. When the responses are examined in relation to unit type (Figure 6.4) it seems that those working in a regional unit or teaching hospital are slightly more likely to see the role as viable, though the difference is not a significant one.

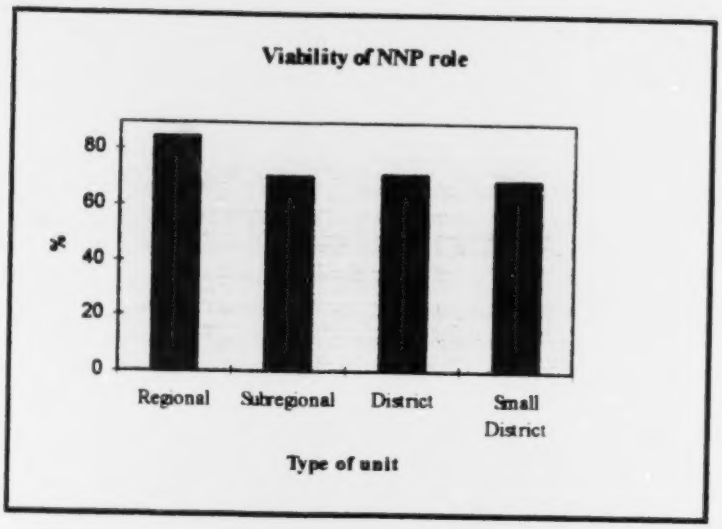

Figure 6.4 Viability of neonatal nurse practitioner role (n=81)

Responses from practising NNPs to the question *"In your view is this a viable role?"* however, were often qualified:

"Yes - but only if we do benchmark and standardise. We need to develop a voice and believe in ourselves."

"Yes - In the bigger units they will survive because of the shortfall of doctors"

"Certainly, in a regional hospital. Could be viable in a DGH if managed properly - clinical supervision, visiting other units and ward rounds etc"

"Yes - Its here to stay - but it may not be right. If issues aren't sorted out the role generally should be stopped, although it won't be"

6.10 The present situation as the NNPs see it

The way that NNPs responded in this study has provided a great many insights into the educational process that started with the programmes and still continues with the individuals. Their views about their experience of learning, of being taught, of supervision, of the pitfalls of not having adequate support and the benefits of an enlightened clinical placement have illuminated and informed the argument about the development of this new professional group. The experience of those not practising has been a salutary one to learn about and an appreciation of the circumstances and factors involved has developed as a result of their willingness to be included in the research process.

The maturity with which many NNPs look back on the programmes of education and the ways in which they responded to them is marked. The enthusiasm is tempered with an

understanding of the broader picture. The NNPs and other professionals, particularly those working in nurse education, have expressed concerns about the future and about recognition of the education, qualifications and experience arising from the education programmes being evaluated. By this point in time it seems that with the growing numbers of NNPs a "critical mass" is being reached, at least in some areas and in some units. With this has come a greater sense of identity and sureness about the need for recognition. Mutual support, across regional and programme boundaries, among those qualified and those in training, is gradually being understood as a necessary component in further consolidation of the development. While most NNPs are concerned about supporting and consolidating posts in their own unit, many at the same time, are focusing on the need to establish standards in NNP education and practice and the ways in which these may be achieved.

Chapter 7 *The Role in Practice*

7.1. From education into practice

Managers, clinicians, neonatal nurses and neonatal nurse practitioners themselves know how the NNP role has been enacted in their own unit and in some cases in their own region, but each has their own view dependent on their personal experience and the professional grouping to which they belong. Some of these individuals may have worked in more than one unit and so have contrasting experiences. However, as part of the evaluation of the educational programmes underpinning this role, the collection of data on a substantial number of qualified NNPs provides a considerably wider perspective.

Much of the previous chapter was concerned with the views and perceptions of neonatal nurse practitioners. In this chapter data are presented that arise from practice more directly recorded or observed. Using diary-checklists and direct observation it was possible to collect data that provide a picture of both quantitative and qualitative aspects of the way that this relatively new professional group are working. These kind of data also allow direct comparison with other professional groups, such as junior medical staff, working in the same specialty. In this way points of overlap and the ways in which activities and tasks are shared can be explored.

7.2 Organisation of work

The shifts worked by all the NNPs and recorded in the diary check-lists were categorised by duration and whether they were day or night shifts. From Table 7.1 below it is clear that most of the NNP shifts recorded were day shifts, split almost equally between those that were eight hours or less and those that were more than eight, but less than eleven hours. This is reflected in the mean of 9.86 hours per shift (median 9 and s.d. 2.56) Relatively few night shifts are regularly worked by NNPs, though some do cover these at times and most work at week ends at some time.

Type and Duration of shift	% NNPs
8 or < hrs/day	36.2
>8 - 11 hrs/day	38.1
>11 hrs/day	15.2
<11 hrs/night	3.5
11 or > hrs/night	7

Table 7.1 Shifts worked by NNPs (n=630)

When the data are examined by type of unit (Figure 7.1) it is possible to see that the NNPs seem to be used differently. Small district units in particular use NNPs to work more longer day and longer night shifts than the other types of unit.

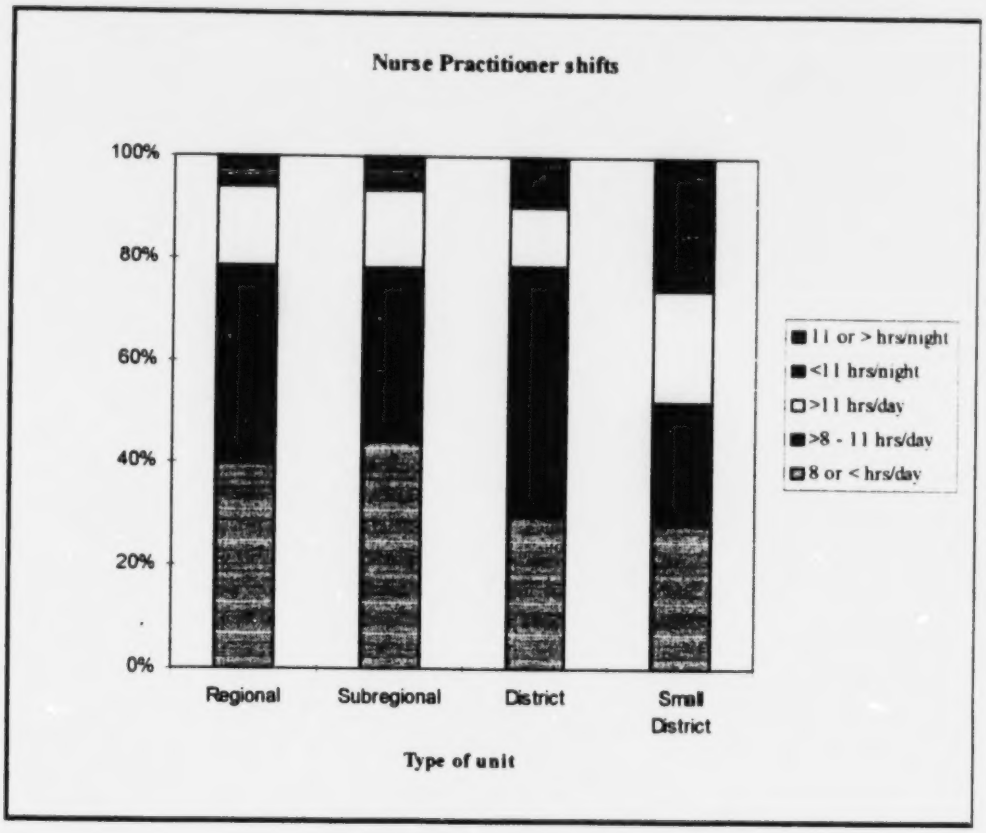

Figure 7.1 Duration and timing of neonatal nurse practitioner shifts (n=630)

As might be expected, the way that work is organised varies considerably from unit to unit. Examples of ten consecutive shifts worked by four NNPs, each in a different type of unit are shown in section 7.4. The availability and level of medical cover, the size of unit and the relationship with other units in the region, influence the kind of work that is required of NNPs. It also depends on whether NNPs are working in isolation or in larger numbers and on the way that maternity and paediatric services are organised.

7.3. The skills used and procedures undertaken

The nature of the work that the qualified NNPs undertake is related to the medical and nursing needs of infants and their families and to the developing skill and knowledge base of the practitioners themselves. The diary data provide information about the skills being practised and maintained, while also reflecting the clinical needs of the client group. In Table 7.2. the number of shifts and number of NNPs for which specific procedures were recorded are used as the basis for the figures shown. Thus % shifts is an indicator of the frequency of a procedure or activity and % NNPs is an indicator of individual and to some extent unit practice.

Procedures	*% Shifts* (n=630 shifts)	*% Practitioners* (n=64 NNPs)
Insertion of:		
Intravenous cannula ***	59.8	98.4
Peripheral arterial cannula **	7.1	34.4
Umbilical arterial catheter	5.4	45.3
Central venous line **	8.7	43.8
Chest drain	1.1	20.3
Take blood by:		
Venepuncture	72.1	98.4
Arterial stab **	14.1	45.3
Withdrawing blood from arterial catheter ***	44.1	85.9
Withdrawing blood from venous catheter ***	8.7	26.7
Administer and order:		
Administer IV antibiotics ***	41.4	85.9
Administer IV other drugs *	27.1	78.1
Calculate and order TPN ***	22.1	50.0
Order X-rays **	37.1	81.3
Order infection screen	29.8	85.9
Prescribe medication *	30.3	64.1
Prescribe fluids ***	32.1	67.2
Administer surfactant *	7.6	53.1
Other procedures:		
Perform lumbar puncture ***	9.7	43.8
Perform US examination	2.5	15.6
Intubate a baby ***	16.8	65.6

*** $p = <0.001$, ** $p = <0.01$, * $p = <0.05$

Table 7.2 Nurse practitioner involvement in procedures and significant differences between the numbers of shifts in which the procedures were carried out in different types of unit

The most common procedures are taking blood by venepuncture and siting IV cannulae.

Blood sampling by other routes is also quite common. While non-NNP nurses may undertake these procedures, other tasks that involve ordering investigations, such as x-rays and infection screens are among the activities that would otherwise be undertaken by junior medical staff in units without NNPs.

In contrast to nurses, even those with expanded role skills, it seems that NNPs are initiating investigations and some of the more invasive procedures that need to be carried out on infants requiring specialised neonatal care. Examples of this are intubation, carried out on 17% of shifts and by approximately two-thirds of NNPs and performing a lumbar puncture, a procedure that was carried out in 1 in 10 of the recorded shifts (and by nearly half the NNPs). They are also more involved in ordering and administration of a range of fluids, medication and related products. Prescribing medication and fluids (mostly with countersigning) was recorded for a third of shifts and approximately two-thirds of NNPs.

Using the shift data and applying a Chi squared test, there are significant differences by unit type for many of the items listed in Table 7.2. NNPs in larger units were more likely to undertake procedures and investigations in the course of a shift, the exceptions being relatively common activities such as venepuncture, giving IV antibiotics and ordering infection screens and less common activities such as cranial ultrasound or inserting a UAC.

The relative frequency of some procedures carried out in different types of unit are shown in Figure 7.3.

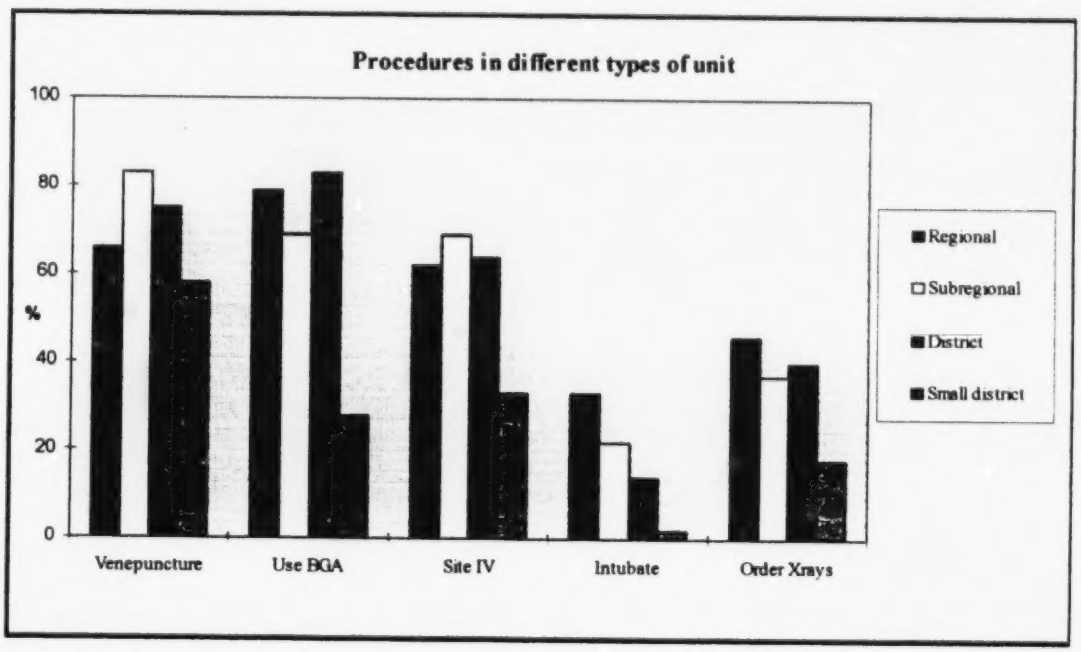

Figure 7.2 Some procedures carried out by NNPs in different types of unit (n=630 shifts)

7.4. Areas of activity

The areas of activity during the recorded shifts are shown in Table 7.3. Outside the neonatal unit attending delivery suite or theatre and undertaking resuscitation are most common. Calls to the postnatal ward for specific baby problems and carrying out examinations of the newborn (baby checks) are also quite common, though some NNPs do not seem to undertake these at all.

Activities	*% Practitioner shifts (n=630)*	*% Practitioners (n=64)*
Attend DS/theatre	41.1	92.2
Resuscitation in DS or /theatre	28.9	85.9
Emergency transfer *	6.7	29.7
Routine baby checks on PN ward ***	15.9	48.4
Calls to PN ward ***	28.4	67.2
Presenting at ward round *	47.8	87.5
Unit management ***	26.3	57.8
Developing protocols *	11.3	56.3
Participating in audit	7.9	34.4
Research	7.9	26.6
Teaching nurses *	52..2	93.8
Teaching junior medical staff **	27.1	73.4

*** $p = <0.001$, ** $p = <0.01$, * $p = <0.05$

Table 7. 3 Nurse practitioner involvement in a range of activities and significant differences between the numbers of shifts in which the activities were undertaken in different types of unit

Examination of the data in relation to type of unit shows different patterns of activity and to some extent a different emphasis. These are illustrated for four activities in Figure 7.3.

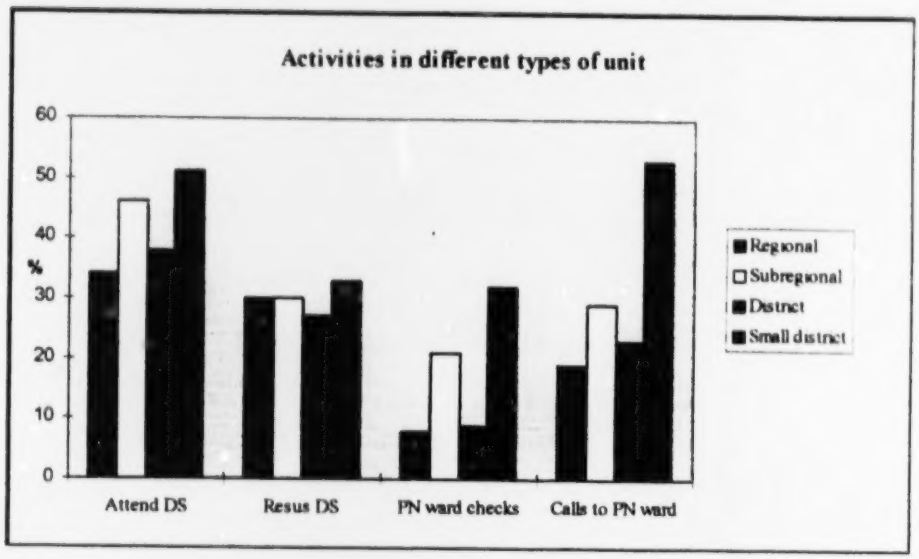

Figure 7.3 Selected activities carried out by NNPs in different types of unit (n=630 shifts)

As shown in Table 7.3 shifts worked in smaller units were significantly more likely to involve calls to the postnatal ward, postnatal checks, teaching nurses and unit management. In larger units presenting ward rounds and teaching junior medical staff were more likely.

The data presented illustrate some of the general points being made, however, looking at individual NNPs activities and the types of shift worked raises other practice issues.

Examples of the ways in which NNPs work and the types of activities undertaken are shown in Tables 7.4a-d. The diary data have been summarised so that for each shift the main features can be appreciated. An over all rating of intensity of work for each shift (on a 5 point scale, from very quiet (1) to very busy (5)) was recorded by each NNP at the time and is included here. An example is shown for each type of unit. (It should be noted that the time shown over shift is just in relation to specific clinical activities such as admissions and emergency transfers and the shifts are not necessarily on consecutive days.) These are shown on the pages that follow.

The first example shows an NNP's work in a large regional hospital.

Time	Work Allocation	Intensity of work	Clinical activities	Other activities
0800-1800	management and technical care of 4 IC babies	4	admitted baby, full check and plan of care	Teaching nurses Presenting at ward round
0800-1800	management and technical care of 4 IC babies	5	emergency transfer for 26 week triplets in small DGH stabilised babies and transferred one triplet (11.5 hrs over)	Teaching nurses Presenting at ward round
0800-1800	management and technical care of 3 IC babies	4	extensive resuscitation of another infant in intensive care	Teaching nurses Presenting at ward round
0800-1745	management and technical care of 4 IC babies	4		Teaching nurses Presenting at ward round Attended unit meeting and SHO presentation
0800-1600	no direct care administration/ teaching	3		Teaching Audit Working on protocols
0800-1600	no direct care administration/ teaching	3		Co-ordinated multidisciplinary meeting SHO interviews Teaching Working on protocols
1800-2100	management and technical care of 4 IC babies	5	on call for DS/theatre , attended / resuscitation emergency transfer	Teaching nurses Presenting at ward round
0800-1800	management and technical care of 4 IC babies	4	on call for DS/theatre , attended / resuscitation counselling and supporting parents with consultant through decision and process of discontinuing treatment	Teaching nurses Presenting at ward round
0800-1230	special care babies only for management and technical care	3		Teaching nurses Presenting at ward round
1200-1700	special care babies only for management and technical care	3		Teaching nurses Presenting at ward round

Table 7.4a Example 1: 10 consecutive shifts by an NNP working in a <u>regional unit</u>

The second example shows the work of an NNP in a subregional unit:

Time	Work Allocation	Intensity of work	Clinical activities	Other activities
0830-21.30	3 IC babies for management and technical care After 1700 hrs for whole unit (21 babies)	2	on call DS/PN wards (after 1700) attended DS/resuscitation	Developing protocols Arranged trial of 2 new pieces of equipment
0830-1640	management and technical care in HD and SC (18 babies)	3	on call DS/PN (830-9.30)	Teaching nurses Teaching junior medical staf presenting at ward round
0830-1640	management and technical care in HD and SC (18 babies)	4	supervision of junior medical staff siting UAC called to resuscitate 2 babies in ITU for inexperienced SHO, stabilised babies, arranged infection screen etc (3 hours over)	Teaching nurses Teaching junior medical staf Supported nursing staff and registrar (stressed and upset about unexpected death)
0830-1640	PN wards/DS	4	on call DS/theatre, attended /resuscitation on call PN wards/ routine baby checks and calls to problems	Teaching junior medical staf Presenting at ward round Responsible for SHOs in absence of registrars and consultants
0830-1640	PN wards/DS	3	on call DS/theatre, attended /resuscitation on call PN wards/ routine baby checks and calls to problems	Teaching junior medical staff
0830-1640	management and technical care in HD and SC (17 babies)	3	put arterial line in baby in IC liaised with radiologist re barium meal procedure	Teaching nurses Teaching junior medical staff Presenting at ward round
0830-2130	IC babies (2) After 1700 hrs responsible/SHO level for whole unit (24 babies)	5	on call DS/PN wards (after 1700) attended DS/resuscitation called to PN for baby problems	Teaching junior medical staff
0830-1640	management and technical care in HD and SC (21 babies)	3	called to DS for resuscitation signing and sorting lab forms/chasing results (2 hours over)	Teaching junior medical staff
0830-1640	management and technical care in HD and SC (16 babies), Also IC 8.30-9.30	3	called to theatre for resuscitation	Presenting at ward round
0830-1640	management and technical care in IC (7 babies) Also HD and SC after 1700 (total 24)	5	SHO on long day off sick (worked 6 hours over) on call DS/PN wards after 1700, attended DS called to PN ward for baby problems	Presenting at ward round appraisal with consultant and senior nurse

Table 7.4b Example 2: 10 consecutive shifts by an NNP working in an subregional unit

The third example shows the work of an NNP in a district hospital neonatal unit:

Time	Type of Work	Intensity of work	Clinical activities	Other activities
0730-1530	management and technical care for unit at reg/SHO level (1 IC, 2 HD and 6 SC babies)	4	on call DS/ attended (2 hours over)	Unit management
0730-1530	technical care for all babies (7) and technical and nursing care for IC/HD babies (2)	2	also doing ECGs	Unit management Presenting at ward round
0730-1530	management and technical care for all babies (8)	3		Unit management Teaching nurses Working on protocols
0730-1530	technical care for all babies (9)	2		Unit management and meeting infection control meeting
0730-1530		3		Unit management
0730-1530	technical care for all babies (11)	4	on call DS, attended DS accompanied baby transferred to regional unit (1.5 hours over) saw ward attender	
0730-1530	technical and nursing care for HD babies (2)	5	Called to PN ward for baby problems	Unit management
0730-1530	no direct care	2		Unit management Working on protocols Teaching nurses
0730-1530	management and technical care for all unit babies (11)	2	on call DS/PN wards	Unit management
0730-1530	allocated management and technical care for all unit babies (11)	5	on call DS/PN wards attended DS/resuscitation (1.5 hours over)	Unit management

Table 7.4c Example 3: 10 consecutive shifts by an NNP working in a district general hospital

The fourth example shows the work of an NNP employed in a small district unit.

Time	Type of Work	Intensity of work		Other activities
2000-0830	management and technical care for all babies (7 SC)	3	on call DS/ attended on call PN ward/attended for baby problems	Unit management Teaching nurses
2100-0830	management and technical care for all babies (7, 1 IC)	5	on call DS/ attended, resuscitation emergency transfer to regional unit on call PN ward/attended for baby problems	Unit management Teaching nurses Consultation with senior medical staff at regional unit
2100-0830	management and technical care for all babies (9, 1 IC)	5	on call DS/ attended, resuscitation emergency transfer to regional unit	Unit management
0700-1500	management and technical care for all babies (9, 1 IC) and some nursing care	4	on call DS/ attended, resuscitation on call PN ward/attended for baby problems carried out PN baby checks	
0800-2030	management and technical care for all babies (10, 2 IC)	5	on call DS/ attended resuscitation in theatre emergency transfer to regional unit on call PN ward/attended for baby problems carried out PN baby checks	Teaching nurses
1345-2130	management and technical care for all babies (10, 1 HD)	3	on call DS/ attended on call PN ward/attended for baby problems carried out PN baby checks	
0700-2130	management and technical care for all babies (9, 2 HD)	3	on call DS/PN wards	Unit management
0800-2000	management and technical care for all babies (10, 2 IC, 2 HD)	5	on call DS/ attended on call PN ward/attended for baby problems carried out PN baby checks	Unit management Presenting at ward round
0800-2000	management and technical care for all unit babies (11, 1 IC, 3 HD)	5	on call DS/ attended on call PN ward/attended for baby problems carried out PN baby checks	Unit management Presenting at ward round
0800-2000	management and technical care for all babies (10, 2 IC, 4 HD)	5	on call DS/ attended on call PN ward/attended for baby problems carried out PN baby checks	Unit management Presenting at ward round

Table 7.4d Example 4.10 consecutive shifts by an NNP working in a small district general hospital

While there are common features in the way the NNP role is practised, a considerable diversity of working patterns and activities is shown in these examples. The workload fluctuations that are typical of neonatal care are evident, and perhaps what is more important is that levels and types of responsibility vary not only between individuals, but also within shifts.

7.5. Covering for Medical Staff

The role of the NNP and the educational programmes that under-pin it have developed at a time of changing medical education and training. The relationship between these events has been an interdependent one (see Chapter 2) and in the real-life context of neonatal care the relationship is also an interdependent one in which NNPs and junior medical staff "share" many of the aspects of care. In many trusts part of the supporting rationale for training and introducing NNPs has been the role that they could possibly play in reducing junior doctors hours. Measuring the effect of specific NNP posts on medical staffing is difficult as the NNPs have been introduced gradually, often one at a time, and at the same time other aspects of the situation have also changed. However, evidence of how they work and what they do in the course of their shifts does provide a picture of the way that they have contributed directly and indirectly to facilitating changes in medical education at junior doctor level.

Examination of the diary data show that assisting with cover for medical staffing occurs in a variety of ways:

1) **At the time of medical staff orientation**, in a block of time
2) **Filling gaps in time in medical staffing arrangements**, covering protected teaching time and meal breaks (ranging from 30 minutes to 3 hours)
3) **Shifts working as SHOs on the rota**, some specifically at weekends
4) **Allocated own work, but also carrying bleep for delivery suite and postnatal wards** (for variable lengths of time ranging from several hours to complete shifts)
5) **On call for delivery suite and theatre, on-call for baby problems on PN wards**
6) **Carrying out baby checks on PN wards**
7) **Conducting ward rounds and presenting on ward rounds in absence of junior medical staff**
8) **Covering whole or part of a shift when SHOs are absent or ill**

From the four examples of individual NNP's shifts (Tables7.4a-d) and in looking at this list, it seems that NNPs are bridging the gaps and functioning as a kind of 'glue', contributing to a reduction in the intensity of work for junior doctors. They can be seen as "smoothing over the cracks in provision" by sharing some of the duties previously undertaken almost exclusively by SHOs working longer hours (section 7.6 below). Being used to fill in the gaps also occurred in the nursing area. In addition to some NNPs working planned "nursing" shifts, others covered during nursing breaks and at short notice when nursing staff were off-sick.

7.6. Other ways in which NNPs are used

In the course of examining the many shifts recorded, the neonatal nurse practitioners were found to undertake a range of activities which included managerial, teaching and supervisory responsibilities. From the examples given in Table 7.5 it seems that neonatal nurses with the ENB A19 qualification have diverse responsibilities and function at a number of different levels in liaising with other health service staff within and beyond the neonatal unit.

Supervising Different Groups	Inexperienced, new and newly promoted neonatal nurses SHOs Neonatal Nurse Practitioners in training/apprenticeship period ENB 405 students
Teaching Different Groups	SHOs NNP students Neonatal nurses ENB 405 students Midwives PAMs and others Parents
Attending Meetings	Transport coordination Quality of care/care planning Perinatal mortality statistics Planning study days Lifting and handling Communication GRASP Asthma Infection control Finance Representatives of equipment manufacturers
Interviews	Applicants for NNP posts/places on course ENB 405/998 course applicants SHOs Nurses wishing to work in neonatal care Staff for appraisal

Table 7.5 A list of some of the activities undertaken by NNPs and recorded in the diaries

It may be, that as experienced and often senior nurses, they had undertaken the kind of activities listed prior to the course. However, it does seem that this aspect of NNP practice is acknowledging some of the new knowledge and skills that they have acquired and consolidated in the educational process. The role in practice does seem to be one which encourages and even demands a multi-tasking approach which is likely to facilitate professionalisation in a broad sense.

7. 7.1 Observational Data Collection

As an integral part of the study one of the research team undertook the collection of observational data, 'shadowing' individual neonatal nurse practitioners for whole shifts at a time. The aim was to collect qualitative data about practice and the ways in which the NNP role was being enacted in a variety of settings and some quantitative data on the extent to which they were involved in different areas of care. In this way it was hoped to enrich what

was known from other sources and to validate the other methods of data collection, including the diary check-lists.

The sample consisted of thirty NNPs working in a range of neonatal units in England and Scotland (8 in regional units, 9 in subregional units, 9 in district units and 4 in small district units). NNPs were included who had been prepared by the four programmes of education. Details of the observation methods are contained in Chapter 3.

7.7.2. Observations of practice

More than a third of the shifts were longer than planned: in some instances this was because the allocated work was not completed, however one NNP was delayed by having to attend an unscheduled meeting, another was involved in a inter-unit transfer and two NNPs were covering for the absence of SHOs through sickness. Using the same rating scale as employed in the diaries, 50% of the shifts were recorded by the observer as busy or very busy, 23% as comfortable, and the remainder as quiet or very quiet.

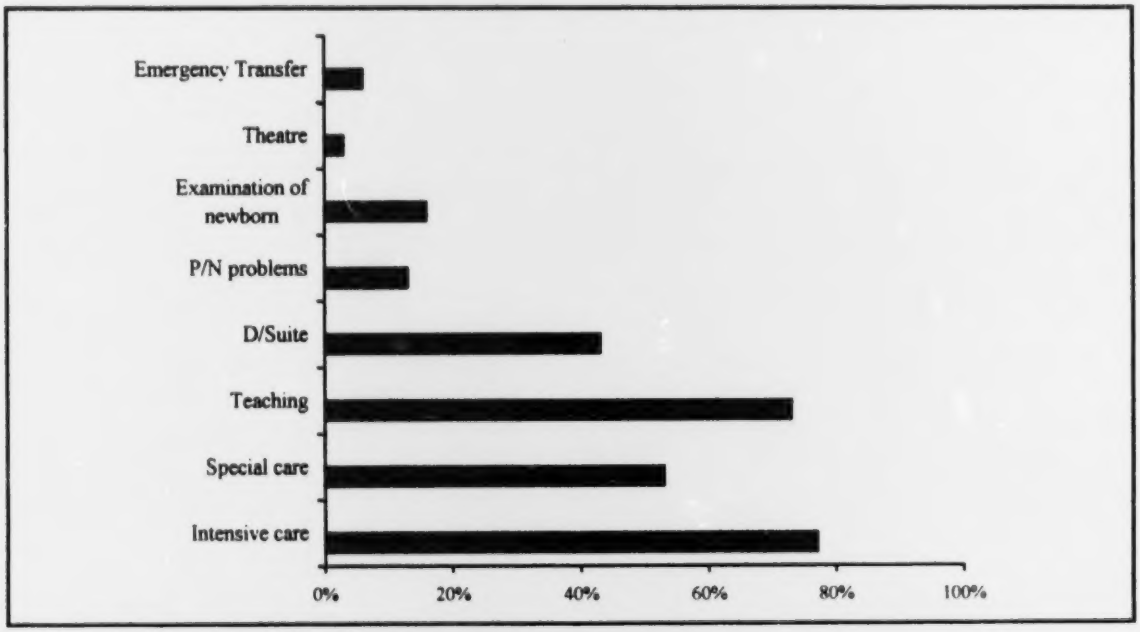

Figure 7.4 NNPs' activities on observed shifts (n=30)

All 30 NNPs spent at least some part of their shift working within the neonatal unit and 12 worked there exclusively. The areas in which NNPs worked while they were being 'shadowed' are shown in Figure 7.4. Twenty-three of the NNPs spent some part of their shift working in intensive care, however it should be noted that with regard to the remaining seven NNPs, there were no babies requiring intensive care on the shift during which the observations took place. Approximately two-thirds of the NNPs (18) had a specific allocation of babies for whom they were responsible, but all bar two of these (16) were involved in technical care only and not nursing care.

The most common technical activities observed in the clinical area were siting IV cannulae (18 NNPs), taking blood samples by venepuncture (19), via an arterial catheter or UAC (15) and processing these blood samples using a blood gas machine (17).

As the responses from the NNPs described in Chapter 6 indicated, the prescribing issue is one that concerns them in their day-to-day practice. A third of the observed NNPs prescribed medication and/or infusion fluids (including blood and blood products), two did both and four of these NNPs had to get the prescription counter-signed. The NNPs did not administer the drugs that they had prescribed, the most common of which were antibiotics. Of the NNPs not prescribing themselves, one noticed an SHO prescription that had been written incorrectly and another dictated a prescription which the SHO then wrote up.

Several specific areas in which the diary data suggest that NNPs are quite active are considered separately below.

7.7.2.1 Contacts with Delivery Suite and Theatre

In total, nearly two thirds of the NNPs (19 out of 30) were on call to attend delivery suite or theatre for all or part of their shift. Fewer (13 out of 30) were actually called to attend one or more deliveries. A total of 22 deliveries were attended, resulting in the birth of 25 babies (including 3 sets of twins). The details of the deliveries are as shown in Table 7.6a-b.

a) Term	*REASON FOR NNP ATTENDANCE*
8	Elective LSCS - 1 for twins 2 for breech 2 for previous section 3 cephalopelvic disproportion
4	Ventouse delivery - 3 for fetal distress 1 for failure to progress
1	Forceps delivery - for fetal distress
1	Emergency LSCS - for fetal distress
2	Normal deliveries - 2 fetal distress

b) Preterm	*REASON FOR NNP ATTENDANCE*
36 weeks gestation	1 Emergency LSCS - prematurity and IUGR
34 weeks gestation	1 Emergency LSCS - prematurity
	1 Elective LSCS - prematurity and twins
28 weeks gestation	1 Emergency LSCS - prematurity and twins
27 weeks gestation	1 Emergency LSCS - prematurity
24 weeks gestation	1 Normal delivery - prematurity

Table 7.6a-b Types of term deliveries attended by NNP (n = 22)

At most of the deliveries (14 out of 22) of deliveries, the NNP was unaccompanied, though these were more likely to be deliveries of term infants. Of the remainder (8 out of 22) the NNP was accompanied (see Table 7.7), but in only 3 of the 8 was this by a more senior medical member of staff. More often they were accompanied by junior members of staff undergoing training (usually NNP students).

Health Professional	*Details*
Registrar	Registrar made an unsuccessful attempt to initiate resuscitation, NNP intubated the baby at the first attempt
NNP student	NNP student undertook care of the baby, NNP supervised
NNP (newly qualified) x 2 deliveries	Newly qualified NNP undertook care of the baby, NNP supervised x2
ENB course 405 student	NNP undertook care of the baby, ENB 405 student observed
Consultant, Registrar, Junior doctor	Consultant & NNP undertook care of twin 2, Consultant intubated baby
NNP student, Registrar, Consultant	NNP initiated resuscitation of baby, until Consultant and Registrar arrived
ENB course 405 students x 2, Consultant	Baby was not resuscitated/consultant decision

Table 7.7 Health professionals observed accompanying NNP to delivery suite or theatre

The outcome from the deliveries which the NNPs attended were as summarised below:

Outcome	*Gestational Age*	*No of babies*
Admitted to ward with mother	Term	13 (1 set of twins)
	34 weeks gestation	2 (1 set of twins)
Admitted to neonatal unit	Term	3
	36 weeks gestation	1
	34 weeks gestation	1
	28 weeks gestation	2 (1 set of twins)
	27 weeks gestation	1
Died	Term	1
	24 weeks gestation	1

Table 7.8 Short-term outcomes for infants born at deliveries attended by NNPs

Of the 25 infants born, 2 died and 8 were admitted to neonatal care and the remainder were admitted to a postnatal ward with their mothers. Looking at the type of deliveries and the

indications for caesarean section or obstetric intervention, it appears that the NNPs function similarly to paediatric medical staff, going to 'at risk' deliveries, resuscitating infants when necessary and working closely with obstetric and maternity unit staff. The NNPs participated along with parents and medical staff in the decisions not to continue resuscitation of the infants who died.

7.7.2.2 Contacts with the Postnatal Wards

Relatively few NNPs had contact with the postnatal wards during the observed shifts (7 out of 30), five NNPs undertook examination of the new-born and four were called to review baby-related problems as identified by midwives and junior doctors. In total, 18 examinations of the newborn were observed (13 first day examinations and 5 prior to discharge) each taking between 10-30 minutes (mean 14 minutes).

Few problems were found in the course of these examinations: one baby was found to have a sticky eye, the NNP took a swab and requested that the midwives undertook eye care as necessary; another baby was found to have a cardiac murmur, the NNP spent time explaining the nature of the problem to the baby's mother and informed the midwife caring for the mother. The baby was subsequently reviewed by a registrar later that afternoon and the diagnosis confirmed.

Of the observed calls to the postnatal ward for NNPs, those shown in Table 7.9 were among the problems discussed with mothers and staff. Those listed are very much the kind of problems that would be responded to by junior medical staff in maternity units with no access to NNPs. However, these experienced and knowledgeable nurses seem to handle babies and talk to parents in a way that is more than simply doing the SHO's job. Their communication skills seem to be particularly relevant in this context, where they change nappies and dress babies following examinations and talk to mothers in a way that enables them to ask questions or be reassured.

Problem	*NNP Action and Outcome*
Spots, identified by mother, midwife referred to NNP	Baby examined, no treatment ordered, midwives asked to review baby periodically, mother reassured, baby remained with mother on post-natal ward.
Spots / pyrexia, identified by midwife, referred to NNP	Baby admitted to neonatal unit, infection screen performed and intravenous cannula sited for antibiotic therapy, parents reassured.
Poor feeder, NNP assessment requested by midwife	Baby examined, no treatment ordered, midwives asked to review baby periodically, mother and grandmother reassured, baby remained with mother on post-natal ward.
Preterm triplets, on-going review	Babies reviewed, no problems identified, discussion with mother re: plans for discharge home, babies remained with mother on post-natal ward.
Cardiac murmur, identified by junior doctor, referred to NNP	Echocardiogram performed (with Senior Registrar) ECG requested and findings reviewed, parents reassured, baby remained with mother on post-natal ward.
Jaundice, rising bilirubin level - on-going problem	Baby reviewed, no treatment ordered, repeat bilirubin level requested for following morning, parents reassured, baby remained with mother on post-natal ward.

Table 7.9 Examples of presenting problems for which NNPs were called to the postnatal wards

7.7.2.3 Teaching

In this instance teaching is defined as a discreet teaching event that was either previously planned or occurred spontaneously and which either took place in the classroom or clinical area. The definition does not include the non-specific teaching of others that occurs through role modelling, the majority, 22 of the 30 NNPs undertook the activity of teaching on at least one occasion during the shift on which they were observed.

In total 84 individual teaching events took place. The mean duration of an individual event was nine minutes, with a range of 5 to 45 minutes. In total 38 health care professionals and parents were taught by the NNPs: the different groups are shown in Table 7.10

NNP students	7
Junior doctors	6
ENB course 405 students	5
Junior neonatal nurses	5
Senior neonatal nurses	5
NNP colleagues	3
Parents	3
Child branch students	2
Student midwives	2

Table 7.10 Individuals taught by the NNPs during observations

The teaching events were categorised and the areas covered during these individual teaching episodes are as shown in Table 7.11:

Subject Area	*Number of Teaching Events*
Clinical skills / tasks	20
Interpretation of results / screening	16
Case management	17
Use of equipment	13
Nursing care	5
Documentation	7
Academic issues	4
Prescribing	2

Table 7.11 Areas addressed in observed teaching events (n= 22 NNPs and 84 events)

The specific clinical skills observed being taught are those listed in Table 7.12. Junior medical staff were observed being taught about UAC insertion, arterial stabs and insertion of long lines. NNPs were taught similar skills, but also about advanced resuscitation and examination of the newborn. Other nurses were taught a wider range of tasks, but both they and parents were taught about resuscitation.

Clinical Skills or tasks	*Number of Teaching Events*
Advanced resuscitation	5
Basic resuscitation	2
Intravenous cannulation	2
Examination of the new-born	2
Arterial line / UAC insertion	2
UVC insertion / withdrawal	2
Arterial stab	1
Cerebral U/S scan	1
ECG	1
Longline insertion	1
Collecting a urine sample	1

Table 7.12 Clinical skills taught in observed teaching events (n= 20 events of this type)

7.7.3 Overview of the observations

The data from the direct observations seem to agree with those from other sources about the role of the NNP in practice. They confirm the substantial role that members of this new professional group can have in caring for newborn and sick infants and their families. The observation sessions also provide examples of the way in which nursing and medical skills and clinical knowledge and experience can be used together, to good effect in a range of situations.

7.8 Comparisons with Junior Medical Staff

Diary data from NNPs and junior doctors were used to directly compare the kind of work and activities undertaken. Using data on 232 shifts worked by junior medical staff and comparing these with the data from 168 shifts worked by NNPs in regional units allowed an appropriate comparison in terms of the case-mix of babies and the kind of workload possible. As was

expected both groups of staff work a variety of shifts (Figure 7.5)., but the junior doctors do more longer shifts at night than NNPs who more commonly work long day shifts.

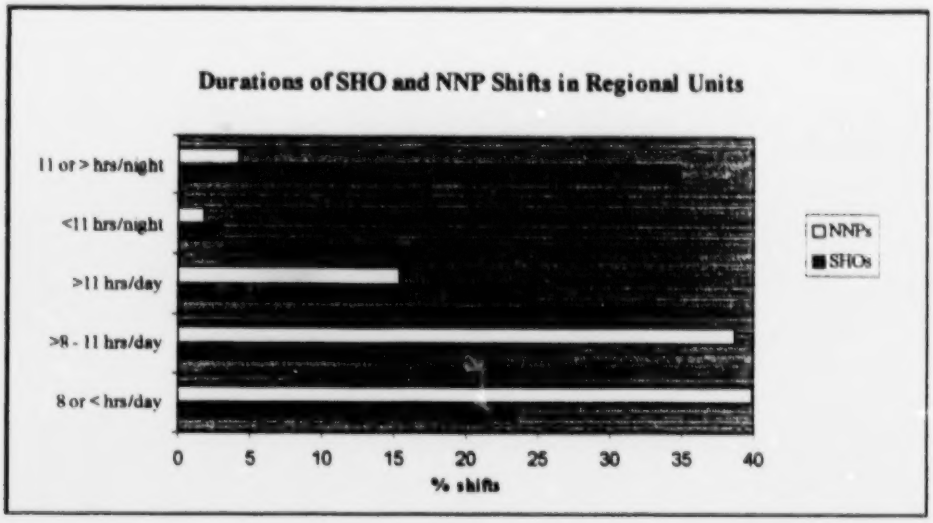

Figure 7.5 A comparison of the duration and timing of shifts worked by junior medical staff and NNPs (n=232, n=168)

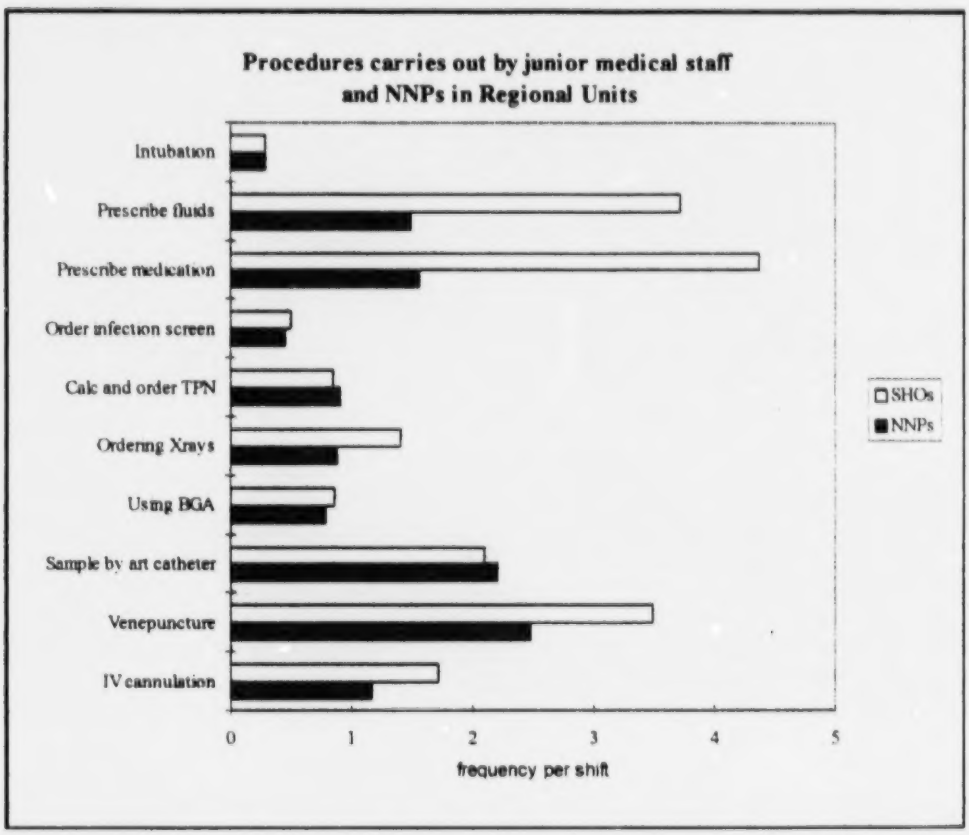

Figure 7.6 Frequency per shift of different procedures and activities (n= 230, n=168)

Similarly, a common range of procedures are carried out by both groups (Figure 7.6). Activities on and off the unit (shown in Figure 7.7) seem also seem to overlap for both groups, though it is clear that NNPs are more involved in teaching. As very experienced neonatal nurses this difference is not surprising. The shifts worked by the junior doctors were more likely to involve calls to the postnatal ward for baby problems and carrying out an examination of the newborn. They were also more likely to attend deliveries during these shifts and to take part in resuscitation. For both groups shifts which included research, audit activities and the development of protocols were not common, however, these are less day-to-day activities, being more likely to take place during set time periods or in blocks when specific aims have been set.

The comparisons of the work carried out by the two groups show how similar the professional skills are that are used in this specialty. The use of these skills reflects patient need as well as current clinical practice, and it seems that they can be 'shared' or even 'transferred' quite effectively. Many of the junior medical staff interviewed in the previous study (Redshaw and Harris, 1995) valued the way in which NNPs worked with them, both from the perspective of clinical care and in the way that they supported the training and education of SHOs.

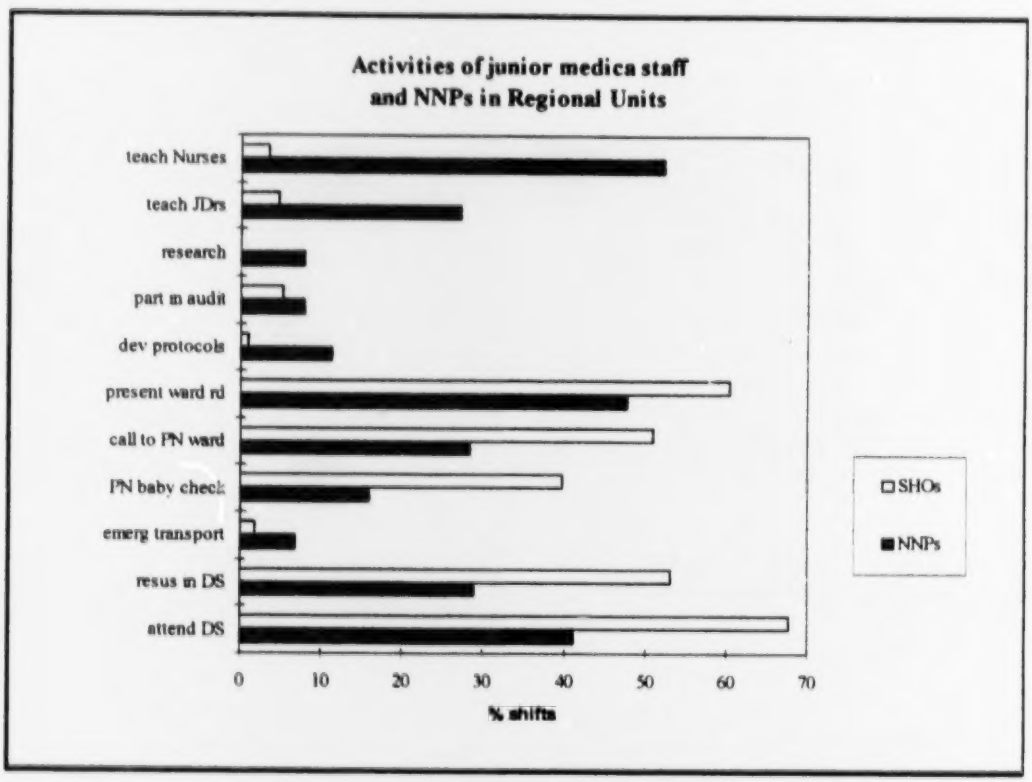

Figure 7.7 Proportion of shifts (%) in which specific types of activity were undertaken by junior medical staff and NNPs (n=230, n=168)

The issue of comparability in terms of quality of care, management, effective care planning, decision-making and outcome is not one that can be addressed directly in this kind of study. A randomised controlled trial, allocating care to the different professional groups, might answer this question, though the practical and ethical issues associated with setting up and conducting that kind of evaluation might be difficult to overcome. An example is provided by a Canadian study, in which more than 800 infants were randomised to care given by either clinical nurse specialist/neonatal nurse practitioners or to the paediatric resident team. No difference was found on a wide range of outcomes including mortality, morbidity, length of stay and parent satisfaction (Mitchell-DiCenso et al, 1996). However, the nurse practitioners only provided care in the day and so the infants in effect received care from both professional groups.

7.9 Overview of the role in practice

The observational and diary data are effective evidence of current practice. The observational data validate what was recorded by NNPs in the diary checklists. Together the methods provide information about how the role of the NNP has been enacted, but this is in essence a snap-shot and a point of comparison for future studies and for comparing the practice of nurse practitioners in this speciality with practitioners in other areas of care. The data comparing the activities of NNPs and junior doctors are of interest for a variety of reasons, including the paucity of parallel studies of the activities of medical and nursing staff using similar methodologies. The data collected on both groups are worth exploring further and additional data collection on junior medical staff working in a wider range of units would be useful. Whether what was observed or recorded in practice is what was being aimed for at the outset of the development is not clear, as with time and experience and changing pressures within and outside the health care system, perceptions change. The question about the kind of care that NNPs currently provide and the way in which this overlaps or complements the work of junior medical staff has been answered. The immediate future in neonatal and maternity care seems likely to include this professional group working in the diverse ways described. However, which additional activities they could take responsibility for is more difficult to judge. As hands-on practitioners or as practice-developers an education is required that can adequately underpin the activities observed and documented. This could take the form of support for core competencies associated with threshold standards. At the same time an education programme for NNPs has the potential to function as a jumping off point for individuals and the group in terms of professional development

Chapter 8 *How others see it*

8.1 The attitudes of other groups

Some of the key issues in relation to other professionals with whom the NNPs work were discussed in relation to the NNPs' own direct experience of working in this relatively new role (Chapter 6, section 6.7). In contrast, this chapter is concerned with the way that selected groups, namely senior medical staff in neonatal care (the clinicians), midwifery managers and parents see these practitioners. Understanding how these other groups, with whom they regularly come into contact, view the changes that have brought NNPs into the front-line of maternity care, is critical in day-to-day management and in planning and supporting the development of this part of the health care system.

8.2. The Clinicians

Senior clinicians in neonatal care work closely with NNPs, initially taking responsibility for clinical teaching and in many instances for clinical supervision of NNP students. As the student and qualified NNPs made clear (Chapters 5 and 6), support for the new role from senior medical staff impacts on teaching, supervision, assessment, transition to role and ultimately practice. Questionnaires were sent to the 66 neonatologists or paediatricians responsible for neonatal care in units with qualified NNPs. Of these 57 (86%) responded and the data returned are used to present their views and experiences. The previous exploratory study (Redshaw and Harris, 1995) reported data on interviews with clinicians, but these were with those who had been involved in planning and supporting the NNP development in the Wessex Region. The present study used a nationally based sample. However, again these were clinicians working in units with NNPs and it is recognised that senior medical staff in other units may have different views. The kind of care required and that provided are to some extent a function of the type of unit and the facilities and staffing available. Clinicians' and others' perceptions may vary depending on the numbers and levels of medical staff and NNPs employed. Exposure to a large team of practitioners or to a single recently qualified NNP may give rise to different views.

The 57 clinicians worked in units with a total of 90 practising NNPs, 14 non-practising and 23 NNPs in training. The units were 9 regional centres, 10 subregional centres, 29 district and 9 small district units. Of the total, 28 units operated a shift or partial shift system for SHOs, 14 had a conventional 1 in 3 or 1 in 4 rota and the remainder operated longer rotas. Apart from the regional centres which had no GP/vocational trainees, all the other types of units had trainees of this kind (4 out of 9 subregional units and all but one of the district and small district units). The numbers of NNPs working in different units at the time the clinician questionnaire was completed (July-August 1998) are shown in Table 8.1.

Type of Unit	*Regional (n=9)*	*Subregional (n=10)*	*District (n=29)*	*Small District (n=9)*
Mean Number of NNPs	*2.56*	1.50	*1.83*	*1.78*
Range	1-5	1-5	1-4	1-7

Table 8.1 Mean number of NNPs working in different types of neonatal unit

8.2.1 Current NNP practice

Using data from the previous chapter on NNP practice, it is possible to compare what NNPs recorded themselves as doing (based on diary checklist data) and what senior clinicians in units with practitioners see as current practice for this professional group (Table 8.2).

Procedures	% *Clinicians' views*	% *Practitioners doing*
Insertion of:		
Intravenous cannula	94.7	98.4
Peripheral arterial cannula	66.7	34.4
Umbilical arterial catheter/central venous line	82.5	45.3
Chest drain	61.4	20.3
Take blood by:		
Venepuncture	94.7	98.4
Arterial stab	71.9	45.3
Withdrawing blood from arterial catheter	89.5	85.9
Withdrawing blood from venous catheter	68.4	26.7
Administer and order:		
Administer IV antibiotics	84.2	85.9
Administer IV other drugs	82.4	78.1
Calculate and order TPN	54.4	50.0
Administer surfactant	74.5	53.1
Other procedures:		
Perform lumbar puncture	66.7	43.8
Perform US examination	14.0	15.6
Intubate a baby	94.7	65.6

Table 8. 2. A comparison of clinician's views of nurse practitioner involvement in procedures and NNPs' own practice (n = 57 clinicians, 64 NNPs)

With common procedures the agreement seems to be quite high, for example, cannulation, venepuncture, administration of antibiotics and other drugs. The higher percentages shown for clinicians relating to the less common procedures, for example intubation, inserting

central venous lines and UACs, are among the activities that NNPs are expected to undertake, though they may not all have done so within the ten recorded shifts.

The clinicians were asked about situations that the NNPs had been faced with for which they were not prepared. Relatively few examples were given and some clinicians qualified their responses, showing that they were aware of the needs of a new member of staff:

"No more than anyone gaining experience in neonatology"

"Yes - we all have this experience"

"No more than an SHO would be"

Also that they were aware of the need for support and back-up:

"No, the NNP can always call for registrar and consultant staff"

"We have not allowed this to happen - registrar and consultant support needed"

"No, they have instant access to senior paediatrician advice and help"

Where specific areas were mentioned, clinicians referred to "*difficulties with practical techniques*", "*resuscitation experiences*", the stressful and difficult nature of "*being first at the resuscitation of a "still birth"*". The need for more clinical experience, and in some instances greater theoretical knowledge, were mentioned in general terms, but there was generally an expectation that these deficits would be made up in the course of consolidation and development. Specific topics listed by the clinicians included parental counselling and the computing skills required for audit.

8.2.2 Perceptions of the role

Comparisons of the clinicians' and qualified NNPs' views of the role of the neonatal nurse practitioner are shown in Tables 8.3a-c.

While there is some level of agreement in some areas, fewer of the clinicians see NNPs working in the ways listed. The greatest discrepancies of view in relation to the areas of neonatal care listed in Table 8.3a occur with accepting outside referrals, planning discharges and examining newborns on the postnatal ward. Differences were also evident in relation to deciding on patient admission, carrying out discharge examinations and taking charge of emergency transfers. It seems that the clinicians are less certain about some of the activities that involve decision-making at this level. In contrast the role of the NNP in the delivery suite and in theatre and the use of their skills in resuscitation seems to be accepted by both groups.

Constituents of NNP Role 1	*% Clinicians (n=57)*	*% NNPs (n=81)*
Decide on Patient Admission	68.0	93.6
Accept Outside Referrals	20.3	67.1
Plan Discharge	63.3	96.2
Examining Newborns on Postnatal Ward	37.2	70.5
Carry Out Discharge Examinations	67.1	92.4
See Patients at Follow-up Clinic	6.4	18.0
Be On-Call for Delivery Suite	81.0	92.4
Responsible for Resuscitation at Delivery	83.5	96.2
Take Charge of Emergency Transfer	70.9	94.9

Table 8.3a. A comparison of the clinicians' and NNP attitudes towards the role of the NNP 1 : Patient Care

With regard to investigations and prescribing (Table 8.3b), the differences seem to be less marked. However, though most of the clinicians seem to think that presenting cases on a ward round is very much part of the NNP role, fewer see taking a caseload and conducting a ward round as an integral element.

Constituents of NNP Role 2	*% Clinicians (n=57)*	*% NNPs (n=81)*
Order X-rays	86.1	98.7
Order other Investigations	86.1	100.0
Prescribe Infusion Fluids	77.2	94.9
Prescribe and order TPN	61.1	80.5
Prescribe Medication	68.0	87.2
Take a Case-load	41.8	74.7
Present Cases on a Ward Round	83.3	98.7
Conduct a Ward Round	40.5	75.9

Table 8.3b. A comparison of the clinicians' and NNP attitudes towards the role of the NNP 2 : Investigations and conventional medical activities

Teaching nurses seems to be expected, though the clinicians as a group seem to see NNPs as less involved in teaching junior medical staff than the practitioners themselves do (Table 8.3c).

Constituents of NNP Role 2	*% Clinicians (n=57)*	*% NNPs (n=81)*
Teach Junior Doctors	62.3	98.7
Teach Nurses	93.0	100.0
Unit Management	43.9	35.9
Participate in Audit	77.2	97.5
Undertake Research	66.7	90.9

Table 8.3c. A comparison of the clinicians' and NNP attitudes towards the role of the NNP 3 : Teaching, management and related activities

Both groups see participating in audit and undertaking research as part of the role, but the extent to which this is actually the case seems variable and the data on practice seem to support this view (Chapter 7). Most NNPs and clinicians agree that involvement in seeing patients at follow-up clinic is not currently part of their role. It may be that in the longer term these aspects of the NNP role develop.

8.2.3 How NNPs are utilised

According to the clinicians (44%) nearly half the NNPs do some night shifts, more than half (58%) work at week ends at times and nearly two-thirds (65%) work some nursing shifts.

The clinicians are clearly aware that the NNPsworking alongside them are used in a variety of ways:

"The NNP involves herself in all medical aspects of the care of infants in NICU and SCBU with the exception of prescribing drugs and fluids which is not permitted by the hospital authorities. This leaves little time for the traditional nursing role. She shares these duties with junior doctors during working hours and is training to set the standards for successive junior doctors to follow."

"NNP have own rota and work in parallel to SHO rota. After morning round, groups of patients allocated to NNPs, SHO and SpRs for the day. One NNP usually covers labour ward during day"

"I have one NNP. She works during the day as a bridge between nurses and doctors. I see her as an important continuity person, teaching nurses and doctors unit guidelines, common procedures etc."

Where there is only one NNP or where specific job-related issues are not yet resolved, the clinicians admit that the present situation is not what they would wish:

" We are still in the process of sorting out the job plan and 'boundaries' between perceived nursing and medical duties"

"At present there is poor utilisation of the NNP. She works as part of a number of experienced nurses who are receiving training. Junior doctors calls and work intensity have decreased."

"While there is only a single NNP she works on an individual shift system answering to senior nursing management."

"Due to severe shortages of nursing staff our current NNP works on the nursing rota and is not functioning independently."

While the clinicians are concerned about the role of the NNP and issues relating to quality of care, many relate the introduction of NNPs and the ways in which they are used to the need for junior doctor support and training.

8.2.4 Links with junior doctor training

This section focuses on the role of the NNP and the ways in which NNPs have been used to ameliorate some of the problems associated with reductions in hours and changes in junior doctor education.

The data collected from the clinicians support what was evident from the diary and observational data presented in Chapter 7. The NNPs are utilised in a range of ways that has facilitated effective adjustments to changes in "medical" staffing and cover arrangements in neonatal care. Some NNPs are seen as a means of filling gaps:

"The NNP is an experienced member of staff who has undergone distinct training. This allows middle grade and especially SHOs to leave early after night on call."

"Currently supplements medical staff, mainly during the daytime. Plan to substitute for medical staff on evening and weekend rotas."

"1/3 Nursing, 1/3 SHO rota, 1/3 Teaching Management therefore SHO "duties" performed by ANNPs a) every Saturday on-call b) day time duties on NNU c) 1/2 day SHO protected teaching time."

"3 FT ANNPs = 37.5 hrs wk. Usually full day time cover and nights covering unit when junior SHO may not be supported by resident registrar cover."

"She works in addition to SHOs but does "cover" SHOs for unexpected absence or study time. Also acts on occasion as nursing team lead on a shift."

But others are more fully integrated with the junior medical staffing arrangements:

"The 2 NNPs effectively function as SHOs and take part fully in the SHO rota."

"NNP works in with SHO rota - 38 hours total, with one overnight shift per week"

The clinicians were directly asked about the effect of the introduction of NNPs on junior doctor training and hours. The data presented in Figure 8.1 show that from the clinicians' perspective, while there may be competition for clinical experience, the NNPs support the learning of junior medical staff, particularly in the clinical area, enable protected teaching time to be effective and reduce the intensity of work for these doctors in training.

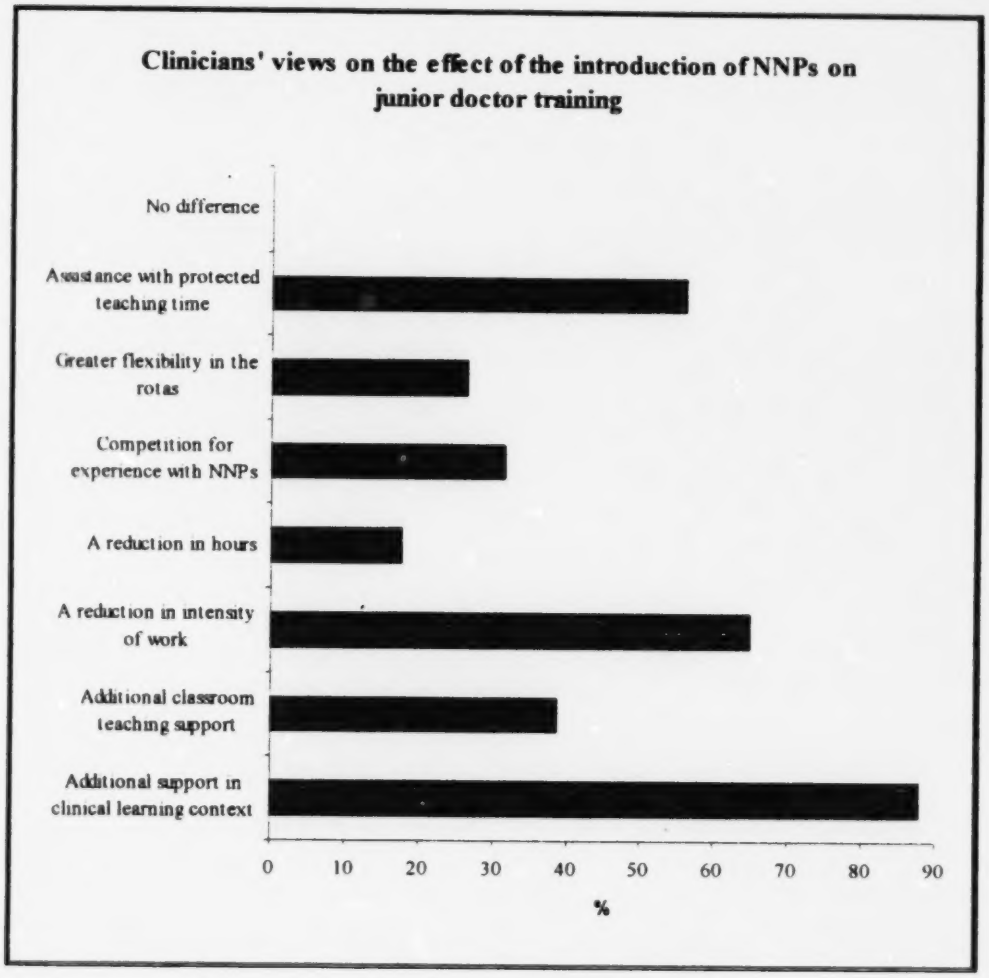

Figure 8.1 Clinicians' views of the effect of introducing NNPs on junior doctor training and hours (n=57)

All the clinicians saw the introduction of NNPs as making some difference to junior doctor training. However, for some there were still issues to be resolved:

"There remain large areas of conflict with overlap of duties. NNPs currently work part NNP shifts and part "nursing" shifts. There is no direct overlap with SHO rota as SHOs also cover paediatric wards, but training experiences are diminishing and maintaining appropriate skill levels for everyone is becoming problematic."

"NNPs pitch in with the nursing rota for the SCBU. They are also regularly on call from home. They are not integrated with the junior doctors rota."

8.2.5 The benefits and disadvantages

When asked about the benefits and disadvantages there were many references to medical staffing issues. At the same time a clear view was expressed about the benefits for clinical care.

"Better continuity of care for baby if looked after by NNP. NNP is better at communicating than medical staff. Nurse and medical education is enhanced."

"Clinical excellence, help with clinical care, reduction in junior doctor hours and intensity"

"Mainly support for junior medical staff - a reduction in inappropriate work of GP trainees. Improved quality of care."

"Improvement in quality and consistency of care given. Help in SHO training."

"Continuity and expertise, developing a team work approach - to the babies benefit"

"Dependable member of staff who doesn't need training from scratch every 6 months. Frees time to target training of SHOs to their needs as GP trainees, paediatricians etc."

Disadvantages described by the clinicians seem to be associated with role boundary issues, management recognition of the role, the interface with other professional groups outside the neonatal unit, conflicting loyalties and commitments and financial costs.

"Opposition from some doctors in other specialities"

"Competition for learning and understanding 'procedures' we are a teaching unit and often there are just not enough babies to go round!"

"The role not yet clearly defined senior nursing management have not grasped the concept of NNPs"

"Confusion whether they are medical or nurses on any particular day"

"Poor utilisation of role due to no increased funding ie salary for an NNP. Role of NNP restricted by a senior nurse and management. Labour ward will not accept NNP in resuscitation."

These views echo those reported in the earlier exploratory study (Redshaw and Harris, 1995) from clinicians, other nurses and from the first three cohorts of NNPs themselves.

A large proportion of the clinicians (77%) have at some time functioned as mentor to one or more NNPs during their training and apprenticeship. They were asked about any practical or other problems encountered during the time that they were mentors. Some of these related to their own role directly or to the clinical experience available:

"The (unpaid) time commitment was enormous"

"Finding time free of interruptions for tutorials"

"Insufficient premature babies requiring ventilation"

"Getting intubation experience initially"

Others referred what they saw as deficits in the course the NNPs were undertaking, giving rise to a lack of confidence or a need to fill the knowledge gap:

"Poor theoretical knowledge in some areas eg acid-base balance"

"I'm not sure that the A19 course that we chose to use was the most appropriate for the needs of our service. The course does not have enough emphasis on physiology, biochemistry and pathology of advanced neonatology."

On the whole the experience was seen by the senior medical staff as a positive one and a necessary process in developing a new role.

8.2.6 The future as the clinicians see it

The clinicians were asked if they would like to comment on the NNP programmes or the development as a whole and approximately two-thirds did so. The issues they raised varied from those advocating and supporting the development:

"I wish the unit could be run by nurse practitioners."

"I should like to see them replace SHOs in small hospital units. Unfortunately they are far too expensive as it needs nearly 2 NNPs to cover the SHO rota and the SHOs are still needed for the Paediatric department."

To concerns about the education underpinning the NNP role:

"Different courses give a very different standard training both clinically and academically"

"The quality of the courses and the applicants to the courses should be high"

"Lack of consistency in courses will limit national movement of staff and make recruitment difficult."

"The courses seem very different and therefore they produce very different types of nurse practitioners. For example, I do not want ANNPs whose only role is to attend labour suite or to work in small units with little intensive care. I want our NNP to be able to work with the sickest neonates and act as an educational resource for our junior staff."

The fact that the law prevents their prescribing is a problem that the clinicians feel must be resolved:

"The uncertainties over the legal situation with respect to prescribing has been a big nuisance"

"The issue of prescribing must be sorted out"

The future in the longer term is also something that concerns them:

"The ANNPs have proved a great benefit to the unit. I am concerned however longterm that this is in some ways a career dead-end. I can't imagine that anyone would wish to work as an SHO or specialist registrar for the rest of their career."

Our initial use of NNPs as direct substitute for SHOs has probably inhibited their development in other areas. I question the desirability of them remaining in their role for prolonged periods of time without some ability to rotate their duties..... Constant "SHO" duties are likely to be too stressful over long periods."

It seems that the attitude of the clinicians as a group is fairly unambiguous: they have accepted the role in the main, value those who undertake it, are prepared to support them and meet them as colleagues. The criticisms relate to the management issues, particularly nursing ones, and to the diversity of courses currently being run. The view of the majority is that the currency of NNPs needs to be a recognised one in which the health care system is prepared to trade. The same question of quality assurance arises with other specialties and other courses, as well as being part of a broader issue in education more generally.

8.3 Midwifery Managers

One of the key areas in which NNPs are active is the delivery suite, as was shown in the data presented in Chapter 7. The provision of skilled resuscitation at the time of birth and the effective emergency care and stabilisation of infants requiring this kind of intervention is one

that some units have addressed with input from NNPs. The use of NNPs to deal with baby problems on the postnatal ward and to carry out examinations of the newborn has also been part of the interface with midwifery staff. Thus the views of midwifery managers and senior midwives responsible for delivery suite and the postnatal wards have been a further strand of evidence in the evaluation of the role in practice of nurses with the ENB A19 qualification.

In response to a questionnaire sent to all heads of midwifery services or midwifery managers in 66 hospitals where NNPs were employed 54 were returned (82%). One manager indicated that there was no contact with the NNP at all and did not complete the questionnaire, thus the total number of responses on which the data below are based is 53 (9 in hospitals with regional neonatal units, 10 in hospitals with subregional neonatal units, 24 in district hospitals and 11 in small district hospitals).

8.3.1 Contact with NNPs

The midwifery managers were asked about direct contact with NNPs in order to ensure that the responses made were based on direct experience of this new professional group. The midwives reported direct contact with NNPs on the labour or delivery suite (45%), on the postnatal wards (44%) and in directorate or other meetings (56%). Little contact occurred in the context of the antenatal clinic (6%).

The midwifery managers were also asked whether their department had been consulted about setting up the role of the NNP and if they felt fully informed about the role and duties of the NNP. Overall 60% said that consultation had taken place and 70% that they were fully informed about the role. While these proportions represent the majority of respondents it is interesting that substantial proportions of senior midwifery staff did not feel consulted or informed in this way. A tendency for this to occur with the larger units was apparent and a contributor to this may be the fact that some NNPs in larger units work solely in neonatal care.

8.3.2 Working in Delivery Suite

The midwifery managers were asked about NNPs' attendance and being on call ("carrying the bleep") for delivery suite (DS). A total of 74% managers reported that NNPs routinely went to DS and 68% that NNPs carried the bleep for cover on the DS. They were also asked about the frequency and circumstances in which this occurred. Of those covering DS, three-quarters were reported as being on a rota and the remainder did so on an ad hoc basis. Examples of the range of responses are shown below:

"NNPs provide 24 hour cover"

"Any at risk deliveries on a daily basis"

"Twice weekly on SHO rota"

"One NNP has it (bleep) the entire span of duty"

"Called for emergency caesarean sections and general emergency neonatal care. "

"Are part of Paediatric on-call medical rota"

"Once a week on a Wednesday afternoon"

"During SHO protected teaching times"

"As part of the paediatric SHO rota. Called as per Obstetric/Neonatal guidelines"

"08.00 - 20.00 hrs each Wednesday standing orders not yet authorised therefore SHO chaperones (Wednesday is day for elective LSCS)"

The diversity of types of cover shows the way that NNPs are being utilised in DS and theatre. While this diversity illustrates the flexibility with which NNPs can fit in with the working arrangements of other staff and the needs of the situation, it also reveals the difficulties in assessing the effects of the introduction of NNPs in this kind of context.

8.3.3 The midwives' view

Examples of the ways in which NNPs have contributed positively to the care of the newborn were elicited from the midwifery managers with an open-ended question. Most of the respondents gave examples and while many related to delivery suite specifically (36%) many referred to their work on the postnatal wards and in teaching.

"Resuscitation of asphyxiated baby with low apgars"

"Attended delivery of very premature infants eg <28 weeks"

"NNP came to delivery suite for report/update on patients - called to unexpected 'flat' baby (gestation 40 wks) gave excellent support until Registrar arrived."

"Timing of the newborn examination can be more suited to mother and staff. NNP is also capable of answering mother's queries regarding feeding and other matters."

"Many occasions. Diagnosed congenital anomalies. Skill in communicating with mothers and parents"

"Has helped to set up protocols for management of babies requiring "transitional care" on the postnatal wards. Supports midwives in planning this care."

"In introduction of a new chart in respect of serum bilirubin estimation they have ensured staff understand its use and benefits."

"Advice re. resuscitation equipment for labour ward and community midwives"

These senior midwives were also asked about the advantages and disadvantages of the role of the NNP in relation to maternity care as they saw it. Advantages were described by all but two of the respondents. The perceived advantages ranged widely, with some focusing on better timing of emergency care, improved availability, a high level of skill, and experience in communicating with parents and non-medical staff:

"Prompt availability of expertise in neonatal emergencies"

"NNPs are experienced, motivated they provide better continuity of care. They have other skills, knowledge such as breast feeding expertise.

"A practitioner who is quickly available, has appropriate education and skills. Also has the midwifery perspective."

"Acting as bridge between NNU/Labour Ward"

"Prompt delivery of care intra-partum and postnatal. In service training. Improved communication. Access for specialist advice."

"Her care is more compassionate and she has in-depth knowledge compared to a junior SHO who is only here for six months on GP training rotation."

"More willing to attend the post-natal wards for examinations. This duty appears to be low on the list of priorities to the Paediatric SHO."

Nearly half (49%) of the midwifery managers saw no disadvantages to the role of NNPs in maternity care. Where disadvantages were mentioned, for the most part these were not directed at the role itself and the way it was being put into practice. Thus points were made in relation to insufficient NNPs to run a full service, prescribing difficulties and related medico-legal problems and the effects on junior doctor training. On the last point there was concern about de-skilling SHOs or GPVTs, and the impact of this when NNPs were not on duty. A small number of midwives also suggested that patients might expect doctors to care for their babies in the delivery suite or theatre, but no actual examples were given in which this situation had arisen. Conflicts of opinion and differences in the attitudes of midwives and senior medical staff were also referred to by a very small number of respondents.

8.3.4 The NNP role in teaching midwives

NNPs are involved in teaching within the neonatal unit, but also outside that context. Midwifery managers were thus asked about the involvement of NNPs in teaching midwives and the situations in which this takes place. A total of 74% (39) of respondents reported NNPs as teaching midwives (Table 8.4). This teaching appears to be equally likely to take place in formal as informal contexts. Other situations include updating community staff.

NNP teaching	%
in the classroom	66.7
in practice contexts	61.5
in clinical situations with patients	59.9
on a midwifery study day	28.2
other	20.5

Table 8.4 Midwifery teaching by NNPs (n= 39 midwifery managers)

The topics covered are as shown in Table 8.5 below:

Topic	%
Resuscitation in DS/theatre	69.8
Blood sampling for neonatal screening	18.9
Administration of neonatal drugs (IV)	30.2
PN baby checks/examination of the newborn	28.3
Screening for congenital dislocation of the hip	3.8
Major congenital abnormalities	7.5
Management of specific medical problems (eg jaundice, cleft lip and palate)	28.3
Supporting breastfeeding	18.9
IV cannulation	17.0
Other	9.4

Table 8.5 Topics taught to midwives by NNPs (n= 53)

The topic which dominates this list, not surprisingly, is resuscitation skills associated with delivery, followed by teaching linked with postnatal management of infants. Other topics specifically mentioned by respondents include hypoglycaemia and intra-ventricular haemorrhage. Reasons for individual NNPs not being involved in teaching midwives currently relate mainly to availablity, though problems with "cross-charging" between specialties has yet to be sorted out in some trusts. Almost all the respondents (49 out of 53) were of the view that NNPs should teach midwives, and that the teaching should occur in all the different situations listed in Table 8.5.

8.3.5. Professional boundaries and the role of the NNP

The midwifery managers were asked about the NNP undertaking specific activities in much the same way that the clinicians and NNPs themselves had been also asked. The activities were, however, more directly focused on aspects of maternity care in DS and on the postnatal wards. The relatively high levels of expected NNP involvement in activities that clearly overlap with midwifery care is interesting (Figure 8.2).

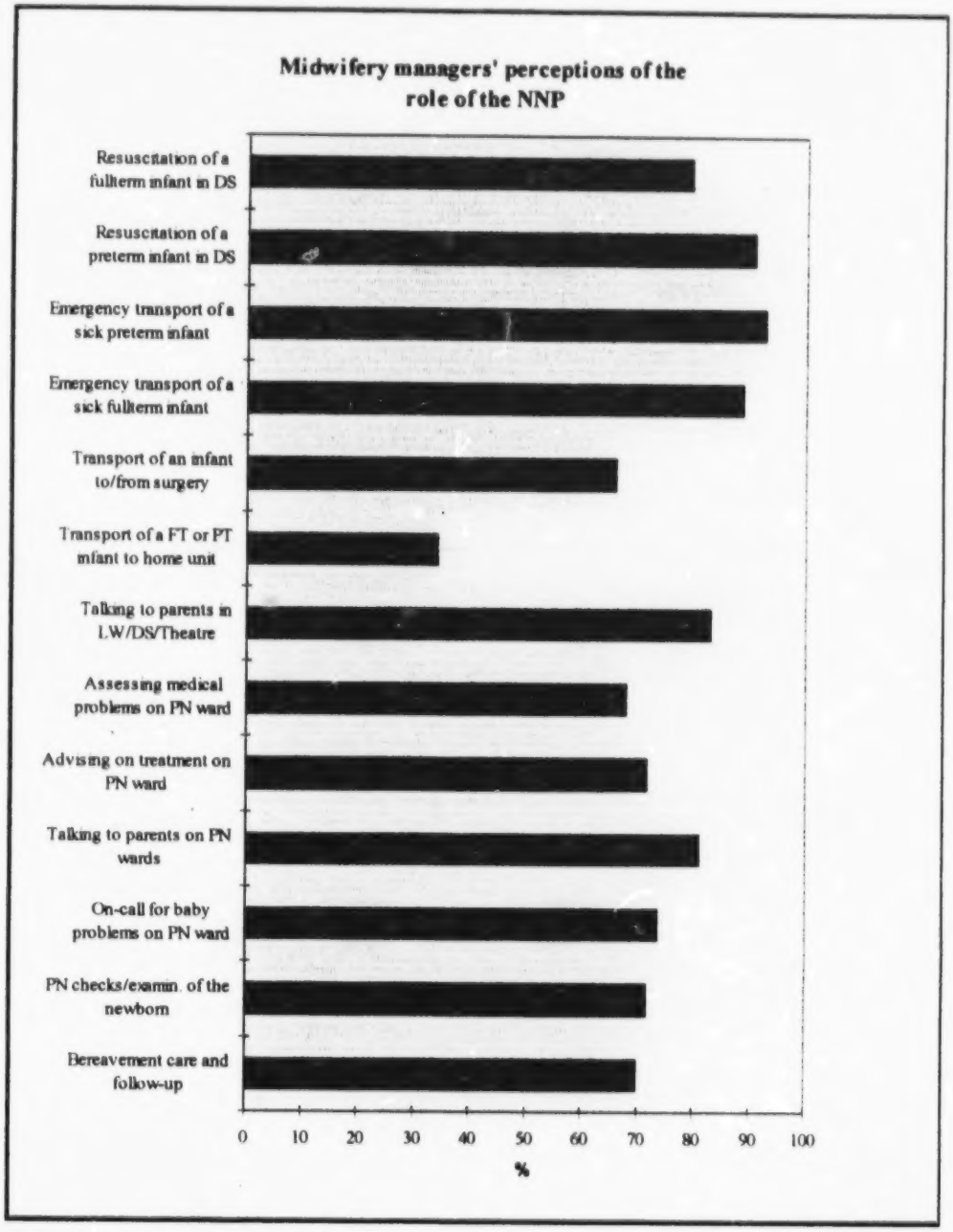
Midwifery managers' perceptions of the role of the NNP
Resuscitation of a fullterm infant in DS
Resuscitation of a preterm infant in DS
Emergency transport of a sick preterm infant
Emergency transport of a sick fullterm infant
Transport of an infant to/from surgery
Transport of a FT or PT infant to home unit
Talking to parents in LW/DS/Theatre
Assessing medical problems on PN ward
Advising on treatment on PN ward
Talking to parents on PN wards
On-call for baby problems on PN ward
PN checks/examin. of the newborn
Bereavement care and follow-up
0
10
20
30
40
50
60
70
80
90
100
%

Figure 8.2 The proportion of midwifery managers with a positive attitude to NNP involvement in specific areas of care (n=53)

The data presented and discussed in Chapter 7 seem to support the views being put forward by these senior midwives.

The midwifery managers were asked about a specific situations and their preference for the professionals working alongside midwives in that context. From the responses shown in Figure 8.3 it seems that the skills and experience that NNPs can bring to "at risk" deliveries and emergency situations, are seen preferentially in comparison with SHOs and in most circumstances as equally preferable to registrars.

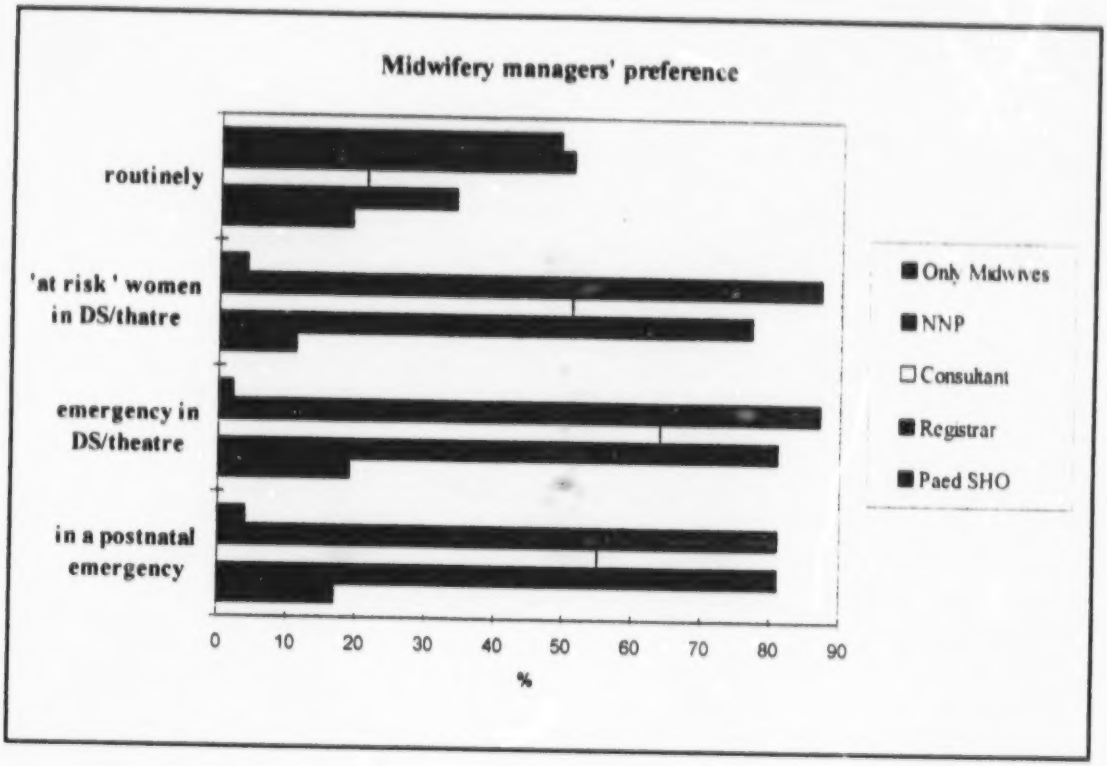

Figure 8.3. Preference for different professionals in specific situations (n= 53)

The data on the perceptions and experiences of midwifery managers support the view that the introduction of NNPs into the areas of midwifery care and teaching has been a positive one that has been received with relatively little criticism. The individual NNPs who have become involved in care in the ways described are generally perceived as valued colleagues.

"NNP role fills a very important position and raises the profile of nursing."

"Amongst the midwives in our unit the NNPs have become a valued support in their clinical practice."

"Our NNP is of great benefit to the unit, staff and patients by bridging the gap between professions and clients"

Though not everyone is so positive:

"They don't understand the midwives role. Often seeing us as "stupid". They don't appreciate our responsibilities and don't acknowledge our skills."

*"I believe they **should not** consider themselves as substitute doctors. They ought to assist and support the development of the skills/confidence and knowledge amongst both nurses practising in the neonatal arena and midwives in the care of the **sick** neonate."*

The issues associated with the diversity of courses, staffing shortages in neonatal care and the problems with prescribing concern some midwifery managers:

"I have concerns re. recruitment of appropriately qualified and experienced neonatal nurse practitioners."

"As there is a national shortage of neonatal nurses it seems strange that they wish to and are being encouraged to practice outside their department, leaving cots closed due to lack of staff within the NNU".

"I would like to have access to more information about the contents of the course and the competencies of the NNP."

" There was difficulty initially in establishing what was the role of the ANNPs and also in writing guidelines to practice and administer drugs."

"The award needs to be at Masters' level and incorporate prescribing medication rights."

It seems that the views of the clinicians and senior midwives are similar with regard to these issues, though at times the traditional divisions between professional groups are used as a way of discouraging, rather than facilitating progress in adjusting these boundaries.

8.4. The views of parents

The birth and subsequent admission of an infant for specialised neonatal care can be a time of anxiety and stress for many parents (Redshaw, Rivers and Rosenblatt, 1985). Having an infant who requires specialised neonatal care presents parents with numerous issues, concerns and fears in an environment that is often noisy, busy and unfamiliar. With large numbers of medical and nursing staff, the way in which care is organised and delivered can influence how parents feel. Previous work in the course of a national study of neonatal nursing, documented the experiences of a large number of parents whose babies had been cared for in neonatal units (Redshaw and Harris, 1995, Redshaw, Harris and Ingram, 1996). With the development of the NNP role and the resulting change in the delivery of care in many neonatal units the aim of this part of the study was to explore the perceptions of such parents and their attitudes towards nurses working in this new role.

Following design of the interview schedule and submission to the appropriate ethical committees, permission was obtained for this part of the study. Twelve semi-structured

interviews were conducted with parents at two regional hospitals as their infants neared the time of discharge home. Of these three interviews were carried out with both parents present, whilst the remainder explored the perceptions of mothers only. The word 'parents' (referring to mother/father or mother where appropriate) will be used for ease of reference throughout this section.

8.4.1 Admission and Discharge Information

The range of time that the infants had spent on the unit was 10 - 91 days (average 28.3 days), no transfer occurred from other neonatal units. There was variation in the total time spent in each area of the neonatal unit. For example, all but one infant was cared for in the intensive care nursery, with a range of a few hours to 35 days. This variable pattern is reflected for the high dependency and special care areas. One infant did not spend time in special care due to the unavailability of cots in that location. Nine of the parents had been given a provisional or definite date for discharge. Two of the parents interviewed were aware of an NNP being present at the birth, whilst three stated an NNP was not present. The remaining seven were unaware of who was present because their major concern was the wellbeing of the infant:

"It was the least of my worries not knowing who people were - I was more concerned about my baby"

8.4.2 The Neonatal Unit

Eight parents were aware that the hospital had a neonatal intensive care unit, although only two had the opportunity to visit before the birth due to the unexpectedly early date of delivery. Two were aware antenatally of the possibility of admission to the unit, one of these had been shown photographs in preparation. Three had previous experience of a child requiring specialised neonatal care.

When asked to choose from a list of adjectives to describe what the unit was like from their point of view it appears that most of the parents had a positive view as demonstrated in Table 8.6.

Rank	*Positive*	*Number*	*Rank*	*Negative*	*Number*
1	*Friendly*	11	1	*Frightening*	6
	Efficient	11	2	*Hectic*	5
	Welcoming	11	3	*Strict*	3
2	*Cheerful*	10	4	*Depressing*	2
3	*Reassuring*	9		*Chaotic*	2
4	*Organised*	8	5	*Hostile*	1
5	*Relaxed*	6	6	*Tense*	1
6	*Cosy*	5	7	*Impersonal*	0
7	*Calm*	4		*Cliquey*	0
8	*Easy*	2		*Disorganised*	0

Table 8.6 The most frequent positive and negative adjectives chosen by parents to describe the neonatal unit (n =12)

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Overall parents perceived the unit as friendly, efficient, welcoming and cheerful. Of the negative adjectives the most frequently chosen was frightening. None of the parents felt that the unit was disorganised. When answering this question several felt that their view of the unit changed from day to day and was dependent on the condition of their infant.

8.4.3 Information

As with other studies of parents whose babies have been cared for in neonatal units (Redshaw, Harris and Ingram, 1996) nursing staff are a key source of information and support. When the parents in this study were asked who they felt they could approach if they wanted information on their baby's progress it is evident that they were able to approach members of the nursing team in many instances. They indicated that the primary or named nurse provided a great deal of information throughout the infant's stay. Approximately half felt that they could ask consultants and other doctors, and those that were aware of NNPs referred to them as a source of information.

Responses to a question concerning specific kinds of help from different sources within the neonatal unit are presented in Table 8.7. It is evident that nurses are sources of information, advice, support and sympathy for the majority of parents interviewed. Again, other members of the multidisciplinary team act as mediators for specific areas. NNPs appear to provide explanation, information and advice for approximately half of the parents. As might be expected family and friends are involved heavily in support and sympathy. The "other" category included other parents as sources of information, advice and support.

Category	*Consultant*	*Other Doctor*	*Unit Manager*	*Nurse*	*NNP*	*Family/ Friend*	*Other*
Explanation/Information	5	8	0	11	7	4	4
Advice	3	5	0	11	5	3	3
Support	2	3	0	10	2	12	5
Sympathy	0	4	1	8	2	10	5

(as many categories were selected as appropriate)

Table 8.7 Numbers of parents receiving different kinds of help from different sources within the neonatal unit (n = 12)

When asked if there were any other kinds of support they felt they would have benefited from the majority of parents felt satisfied that they had received adequate support:

"can't see how they could have done it better"

"no, everyone has been great"

There were variable responses when parents were asked if there were any other kinds of information they felt they would have benefited from, approximately half required no further information but issues concerning specific aspects of care were raised:

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"loads of things I'd like to ask, would like to know a lot more about saturation's, technical equipment etc."

8.4.4 Delivery Of Care

When exploring the developing role of neonatal nurses and the changes in the delivery of neonatal care, only half of the parents (6 out of 12) were aware that nurses with extended skills and knowledge (NNPs) were making decisions about the medical care of their infant. Of these six, only three were able to correctly identify the number of NNPs working on the unit. It seems that generally parents are positive about the nursing developments as a whole in the provision of neonatal care. This can be in seen in the comments made by those parents who were aware of the NNP developments:

"all for it"

"I think its better, saves time and lives, they can work on their own initiative"

"assume training and experience prepares them for the role, may have greater experience than a junior doctor"

and those that were not aware:

"I agree with the nurses doing more because they have more contact with the babies"

"doesn't bother me -I think its a good thing"

Using an open-ended question parents were asked if they could identify NNPs from the SHOs or nurses in any way. Several parents referred to the fact that NNPs, like junior doctors, do not wear uniforms:

"NNPs haven't got pinnies on"

"they don't wear the same uniform"

Others mentioned the differences in knowledge base between NNP and nurses:

"yes, they are more knowledgeable - initially thought that one ANNP was a doctor because she was so sure of what she was doing, very confident"

It seems that due to the number and diversity of staff with whom parents come into contact, it is often difficult to distinguish between them:

"could tell they were different but couldn't tell who they were"

Of those parents who were able to identify the NNPs several were able to describe experiences they had with an NNP caring for their infant. Positive experiences occur as a common theme throughout these responses:

"when she spoke to me, baby had abdominal distension, she was lovely, she sat down with me, came from her lunch break to talk to me, explained everything, calmed me, reassured me when no one else had explained things"

All of the parents, regardless of their perceptions and recognition of staff structure and the roles they carry out appeared to have positive experiences with staff. This is evident in the following comments:

"very special people who work here - can't praise staff highly enough"

"Everyone on the unit absolutely fantastic"

However, several of the responses although positive made reference to specific concerns. For example:

"they do a good job under a lot of pressure. At times you can see they are overstretched. This can be a concern especially when you cannot be here very much"

8.4.5 Overview of Parents' responses

This part of the study functioned as a pilot project. Due to the small sample size and restricted location (number of sites and type of unit) it is difficult to generalise from these interview data. This was impacted by the general organisation of the process, the liaison required, the timing of planned interviews (e.g. infants discharged the day before) and by logistical difficulties associated with obtaining ethical committee permission.

As one element of the broader study this exploration demonstrates a range of interesting issues. Primarily, parents regardless of specific concerns are satisfied and impressed with the standard of care given by health professionals in specialised neonatal care.

What is apparent, is that parents of sick and small infants are not always able to identify the differences between those health professionals caring for their infants. It can be argued that this is due to the critical nature of the infants health which necessitates exposure to an abundance of health care professionals. At this time it appears that distinguishing who is involved in the care of their infant is not a major priority and what they do perceive as important is the safety and well being of their infant. This is a critical point to take on board in planning this kind of study, where at this time the care of small and sick newborns is shared by a wide range of professional groups and the introduction of one or more NNPs is diluted by the much greater numbers of staff working more conventionally as doctors and nurses. There is also the ethical issue of interviewing parents at a stressful time in the lives of their babies about an issue which could be seen as peripheral to their infant's wellbeing.

By the time the infants progress to special care or a low dependency nursery parents are more able to distinguish between those involved in their baby's care. This is possibly because they have had time to get to know staff members and adjust to the neonatal unit environment.

To assist parents in the recognition of members of staff one of the units had a staff picture board. In addition, on this unit the NNPs wore name badges, were described in the parents information booklet and were distinguishable by a type of uniform. Of the parents interviewed on this unit two were able to correctly identify the number of NNPs. In contrast, the other unit had no staff picture board and there was no mention of the NNP role in the currently available parent information leaflet.

It is evident that when parents are able to identify the NNP they value their prior experience as nurses, their excellent communication skills and the continuity of care they provide. In addition, parents appear to recognise the importance of adequate training and expertise to undertake this change in role. They see the changes in the delivery of neonatal care as beneficial to the immediate and future care of critically ill infants.

8.5 Discussion

In this chapter the perspectives of clinicians, midwifery managers and parents have been considered in relation to the relatively new role of the NNP. It is apparent that the views of these other groups are important to explore when considering this emerging role and its effects on the delivery and standard of neonatal care.

It seems that there is consensus across these groups that the role of the NNP is accepted and valued. As previously discussed, the criticism that there is from the clinicians and senior midwives working alongside NNPs relates predominantly to management issues. Parents, regardless of specific concerns, hold similar views, and in the context of the care given by health professionals are impressed and satisfied. Further exploration of parents' views requires consideration of the timing of data collection and the ethics of focusing on a topic that is salient for the health professionals concerned, but relatively unimportant to parents whose baby is still being cared for in a neonatal unit.

Both groups of the professionals participating in the study recognised and valued the prior experience, knowledge and commitment that individuals bring to the new role. In addition, they appeared to have 'added value' as colleagues and as members of the wider multidisciplinary team.

How other nurses see the role of the NNP has been explored previously (Redshaw and Harris, 1995). The results of the previous study reflected views similar to those discussed above, with majority of nurses regarding the role of the NNP positively. As a long term goal it would be interesting and beneficial to explore the views and experiences of other professional groups with whom NNPs have direct contact, for example, pharmacists, pathologists and radiologists. This would enable comparison with the NNPs' own direct experiences of working with these groups described in Chapter 6.

Chapter 9 *The emerging educational and professional issues*

9.1 The research goals

The data presented and discussed in the previous chapters show that the research project has achieved its aims of undertaking a comparative analysis of the different programmes of education available for nurses wishing to become neonatal nurse practitioners (ENB A19) and evaluating the outcomes as demonstrated in the performance of practitioners completing the different programmes. Parents' perceptions of the NNP role have been explored as have the career plans of those undertaking the ENB A19 programmes. The research project also included the development of instruments and data collection that documented the views and experiences of other professionals in neonatal care and midwifery and provided evidence about the work of junior medical staff that could be used for comparison with the work of NNPs in the specialty.

9.2 The debate on specialist and advanced practice

The development of methods of assessing levels of performance is acknowledged to be a challenging process for those involved in this kind of research. The goal of mapping the emerging relationship between the specialist practitioner and the ANNP role in practice became, over the time course of the project, less than practicable. However, many of the associated issues have been part of the debate that is integral to the research report.

The concepts of advanced and specialist practice were sanctioned by the PREP documents (UKCC, 1994). Since that time a number of trusts in England have employed specialist practitioners in range of specialities such as diabetes, asthma and continence care. However the number of advanced practitioners in post is much fewer, and they tend to be employed in areas which encompass a variety of specialities, such as accident and emergency, night duty and paediatrics (McGee, Castledine and Brown, 1996). In reality, however, there is enormous variation between specialist and advanced practitioners in terms of their role, scope of practice and responsibilities (Wallace, 1998; Furlong and Glover, 1998). With regard to advanced practice this diversity is partly due to the UKCC's apparent reluctance to formalise a definition of advanced practice, though it is recognised that the creation of such definitions is fraught with difficulties.

The NNPs' professional relationships, the effective planning and decision-making, diagnostic and communication skills, level of clinical knowledge and practical competence observed in this study appear, in general, to reflect an advanced level of practice. However, as there is no agreed definition of either specialist or advanced practice, and those working in the health service under these titles are doing so in a variety of ways, it is not possible identify the characteristics of advanced practice beyond neonatal care.

Internationally, there has also been confusion regarding this aspect of the role (Fulbrook, 1996). The National Association of Neonatal Nurses (NANN) of North America encountered difficulties defining the advanced practice neonatal nurse role (APNN). The association is

currently in the process of devising an acceptable definition and members are being asked to comment on the draft proposals. NANN (1999) suggests that the APNN role is determined by its knowledge base and suggests that Masters level is appropriate. The proposed role definition is as follows:

"A registered nurse with a graduate degree in nursing and a concentration in advanced practice neonatal nursing, to include both didactic and clinical components, advanced knowledge in nursing theory, physical and psychological assessment, appropriate interventions, and care management. The APNN is a clinically competent, expert practitioner who applies an expanded range of practical, theoretical, and research-based therapeutics in caring for infants and their families." APNN practice is further defined by the following core competencies:

- Consultation and collaboration inside and outside the profession of nursing
- Clinical and professional leadership
- Change agent skills
- Ethical decision making
- Expert coach and mentor to families and colleagues
- Utilisation and evaluation, and conduct of research

(NANN 1999 p18)

In reviewing the above competencies it could probably be said that some of the NNPs in the United Kingdom are at this advanced practice level, however there is a continuum of practice and skill that reflects both the starting point for individual practitioners and the nature of the different educational programmes. However, with a longer term perspective, this may be the direction in which this professional group is moving. However, the UKCC is working towards replacing the specialist /advanced practice frameworks that were introduced via the PREP reports (UKCC, 1994). The plan for the new structure to be introduced is based on the notion of two levels of nursing practice. The first, initial or core level will include newly registered nurses and midwives, through to those who have developed some expertise as a result of their clinical practice. The second or higher level of practice will include nurses and midwives working in a senior clini[illegible]:ole who are regarded as expert nurses, they will not, however, be confined to working in a particular speciality. It is anticipated that only a minority of nurses or midwives will achieve this level of practice, which will probably take a minimum of five years to attain. The focus of this second level however, will be the level of practice rather than the role itself (Castledine 1998a; Castledine, 1998b; Scott, 1998). It has been suggested by Castledine (1998a) that higher level practice will equate to the advanced practice of the former framework and that not all nurses and midwives currently registered as specialist practitioners and working under this title, will fulfil the requirements of higher level practice. However, the exact details are yet to be finalised and disseminated, the clinical competencies against which nurses and midwives are to be assessed are currently being developed. Following a consultation process, it has been reported that the UKCC's proposals have generally been endorsed (Castledine, 1998b). The suggestion has been made that higher level practice will be linked with the development of the new consultant nurse grade (Castledine 1998b; Coombes, 1998).

Thus the position of the NNPs completing the programmes evaluated in the course of this research project may not be a satisfactory one. The goal posts are shifting and some may find themselves unable to register as higher level practitioners, particularly those who have not pursued further academic study or those who are working in a narrow or circumscribed capacity. In the short term it may not matter to the individual NNPs or the trusts that employ them if they are unable to register as higher level practitioners. In the longer term, health service managers may prefer practitioners at the higher level and NNPs may find that their salary and progression limited. They may also find that they lose out when pursuing new posts.

The introduction of new levels of practice linked with legal requirements will impact on nursing and midwifery education substantially. With regard to the programmes evaluated there are likely to be a number of effects: the content, duration, level and qualifications associated with the different programmes will be affected to varying degrees. Indeed, the assessment strategy for higher level practice could in the future be used by the ENB A19 programmes as a template for their assessment strategy, if it is thought that the NNP role involves higher level practice.

9.3 The Role of the NNP

Advanced practice has been largely viewed as an all encompassing term that includes a range of nursing expertise and responsibilities (McGee, Castledine and Brown 1996). There are concerns that advanced nursing practice is not simply synonymous with the nurse who is working as a junior doctor replacement (Fulbrook, 1998). The evidence from this study is that while NNPs may be working in ways that assist junior medical staff in their education and training and reduce the intensity of their work, many are working in a way that uses "medical" skills and knowledge, and at the same time retains much that is intrinsic to nursing. As was reported following the ENB funded exploratory study (Redshaw and Harris, 1995), the NNPs appear to be a new hybrid and as such, when encouraged and supported, are showing signs of 'hybrid vigour'. As role models for other nurses and junior medical staff, and as skilled and experienced health professionals, they have the potential to be powerful agents of change, while continuing to be advocates for their client group.

9.4 Standards and quality

Neonatal nurse practitioners represent a relatively new development in the United Kingdom and as such perhaps experiment and diversity are to be expected. However, to realise the potential of this group and to provide the appropriate education and training requires parity. The evidence presented in Chapter 4 concerning many aspects of the educational programmes shows a diversity in all areas that does not appear to be related to the needs of the client group and which does not facilitate NNP transfer between units and trusts. The issue of quality assurance is a prime one in the context of neonatal nurse practitioner education.

That the programmes of education differ is clear. This makes the need for effective consolidation of skills and continuing education for NNPs graduating from the different courses an important goal. The responsibility for this is left to the individual NNP and their employer, though one of the programmes has assisted in this regard. The emergence of a recognised professional organisation or group that can develop standards for practice and a continuing programme of education to support practice and professional development would enable the need for continuing education to be addressed more fully and evenly.

These same points were made by NNPs in the study who recognised what is required themselves.

"I would like to see all qualified ANNP's unite and develop a single course or parity across courses. Fight for national recognition in pay and conditions, develop a strategy for ongoing education for ANNP's, and future developments."

"There is a need for more standardised outcomes and practical expectations of courses, as at the end of the day we obtain the same certificate, yet talking to other colleagues there is a vast chasm between the ANNP models"

"Standardisation of the course is essential. A comprehensive syllabus should be given to all students on the course. And the syllabus should be available upon application for the course so that it may be compared with other establishments."

"Neonatal Nurse Practitioners need to work together to form a single, acceptable, 'set of rules' for employing NNPs in order to prevent skills and worth becoming diluted and devalued."

9.5 The main study findings

Education

- Different academic levels, differing qualifications, diverse assessment strategies and a variety of goals in terms of clinical practice were identified among the apparently similar ENB A19 programmes. A lack of comparability between courses is of concern from the perspective of those undertaking and organising the programmes, and those employing ENB A19 graduates.

- Considerable diversity was also found between the non ENB A19 courses that were reviewed. However, in some respects the programmes are similar as evidenced in the aims and learning outcomes, structure and content of modules and methods of assessment. There is also similarity between these and some of the modules making up the ENB A19 programmes.

- The emphasis also differed between programmes and content varied. There were significant differences particularly with regard to the teaching of theoretical subjects such

as physiology, biochemistry and pharmacology which underpin neonatal care and practice.

- The importance of adequate clinical teaching and supervision was recognised by students and those responsible for mentorship, but nearly a half (47%) of students felt that their educational programmes had not adequately linked clinical practice with theory.

- Most of the qualified NNPs (85%) felt that the knowledge base gained during the ENB A19 programme was invaluable. However, less than half (43%) thought that the course prepared them well for the role and nearly two thirds (62%) felt that more teaching was needed in a clinical context.

- Many graduates from the programmes recognised the need for consolidation of the knowledge and skills gained and on completing the programme almost all students (93%) reported that there were technical areas about which they did not feel confident.

- Not all NHS trusts and home units support the training and introduction of NNPs, despite funding being available for the educational programme. Indicators of support are the effectiveness of supernumerary status during the programme, the presence of NNP job descriptions, a probationary period following the course and planning for an NNP post at the outset and ultimately one which recognises an NNPs' skills and abilities.

  - The fundamental need for supernumerary status was stressed by programme leaders, students and practitioners. While most students were supernumerary during the programme, at least 1 in 10 were not.

  - At the beginning of the programme more than 40% of students did not have a job description for their prospective NNP role, and the situation was little different at the end of the course.

  - Nearly a third of the NNPs (32%) did not have a probationary period following completion of the course, and 41% felt that more time was needed to consolidate clinical skills. In many instances planned probationary periods were reduced in length.

  - Of those respondents not practising as NNPs, most were senior nursing staff, approximately half of whom had never been employed in NNP posts, though most wished to be so.

Practice

- The study data from observations, diary checklists, questionnaires and interviews agree about the role of the NNP. They confirm the substantial role that skilled and experienced nurses of this kind can have in caring for newborn and sick infants.

- For the NNPs the key aspect of the role is providing high quality clinical care (98%). Teaching and supporting nurses and medical staff was also viewed as important (45%).

- Data collected from diary checklists demonstrate a well defined clinical role. Most NNPs are involved in intensive or high dependency care in the neonatal unit. The most common activities are venepuncture (98% of NNPs), insertion of intravenous cannula (98%), ordering an infection screen (86%) and withdrawing blood from an arterial catheter (86%). More than half were recorded as having undertaken intubation (66%) and administering surfactant (53%). More than 60% of NNPs were recorded prescribing medication and/or fluids and 50% calculated and ordered TPN. NNPs in larger units were significantly more likely to undertake procedures and investigations.

- Teaching nurses (94%) and junior medical staff (73%) is also an integral part of the NNP role. Whilst 56% report involvement in developing protocols, fewer are involved in research (27%) and audit (34%).

- Outside the neonatal unit attending delivery suite (92%) is frequent and the NNPs have a key role in emergency care at delivery in many maternity units. Calls to the postnatal ward for specific baby problems (67%) and carrying out examinations of the new born (48%) are also common.

- Direct observations showed similar findings with regards to common clinical activities. When attending delivery suite it was observed that in most instances NNPs were solely responsible for assessment and resuscitation of the newborn. The NNPs also have an active and substantial role in teaching resuscitation skills to midwives.

- Assisting with cover for medical staff occurs in a variety of ways, including: at the time of medical staff orientation, covering protected teaching time and meal breaks and shifts replacing junior medical staff on the rota.

- The way in which the work of NNPs is organised overlaps with and to some extent parallels that of experienced junior medical staff. However, the way in which it is carried out shows that nursing skills are being utilised and integrated into the new role.

- The clinicians reported that while there may be competition for clinical experience, the NNPs support the learning of junior medical staff directly and indirectly, by teaching formally and informally, covering periods of protected teaching time and generally reducing the intensity of the workload.

- The majority of NNPs take a positive view of their professional relationships with neonatal nurses, doctors, and other health care professionals, a view endorsed by the large numbers of senior neonatal clinicians and midwifery managers directly consulted in the process of the study.

- Interviews carried out with parents showed that they are not always able to distinguish between the health care professionals caring for their infants in the neonatal unit. When

parents are able to identify the NNPs they value their prior experience as nurses, their excellent communication skills and the continuity of care they provide.

- Two-thirds of NNPs reported that they had since maintained the clinical skills acquired during the programme, though the remainder had maintained only some skills.

- In terms of the future, most (80%) thought that they would continue to work as an NNP and short term plans commonly included development of the post and undertaking further education.

- The reasons most commonly stated for not practising as NNPs include the post not meeting expectations, personal and professional support needs not being met and conflicts regarding the demands and expectations of others.

9. 6 Summary and implications

The neonatal nurse practitioner development has occurred against a backdrop of changes in nursing and medical education, advances in health technology and transformations in the organisation of health care. The findings of the study neonatal nurse practitioners to some extent parallel those of a recently reported study of new roles in practice in a range of specialties (ENRiP,1999; Levenson and Vaughan, 1999). This finer grained evaluative study reflects the complexity of delivering care to low birth weight and sick infants and their families and the ways in which NNPs can contribute. Quality assurance issues arise in relation to the differences between the educational programmes. Differences in practice are inevitable given the diverse situations in which NNPs work, however, core skills, the maintenance of these and the continuing education of this professional group are among the topics that nurses and doctors working in neonatal care, their professional organisations and the institutions providing the educational programmes need to consider. The nature of these largely full-time programmes and the difficulties associated with establishing the role are evident. As was reported in the previous exploratory study (Redshaw and Harris, 1995), NNPs are a new hybrid, acting as role models for other nurses and junior medical staff. As skilled and experienced health professionals many NNPs can be recognised as potentially powerful agents of change, while continuing to be advocates for their client group. Parallels with other new roles in clinical practice are evident and in many ways the NNPs in the acute speciality of neonatal care provide an example in the areas of education and practice from which others can learn.

The implications of the present study are that comparable standards are needed with regard to the educational process, specifically: ENB guidelines, validation documentation and course descriptions and specifications, core theoretical areas taught, core clinical skills and methods of assessment. With core or fundamental skills, that can be agreed (but expected to change with time), and a consistent approach to assessment, the currency of NNPs could be a recognised one that is valued nationally. The mechanisms by which such standards could be achieved are institutional, statutory, professional and individual. The need for 'threshold' standards in education and practice is one that has been under discussion recently (ENB, 1997) and is seen as particularly relevant in the context of accountability, performance review and regulation (Levenson and Vaughan, 1999). However, there is a danger of

threshold standards becoming minimal requirements or competencies and in turn becoming what is generally accepted. In keeping pace with the professional consolidation and the evolution of new roles, changing technology and patient need, a more flexible approach is needed in which the educational institutions, the different professions and their statutory bodies work together in an ongoing process of audit and review.

9.6 A last word

The diverse elements of the study reflects the complex nature of the real world in delivering health care to low birth weight and sick infants and their families. They also reflect the nature of the processes involved in teaching and learning. Our exposure to all the different kinds of professional working at the interface of care and education has been a positive one. This was particularly true of the neonatal nurse practitioners who participated in the study, whose motivation, energy and skill we admire. The last word of advice to would-be NNPs comes from them:

"Be prepared to work hard and give up leisure time for studying. Have a good foundation of knowledge in Biosciences. Have a good rapport with medical staff (senior and junior). Be flexible and adaptable in the learning environment. Always be sure, we are nurses not doctors."

" To think seriously about it, as it takes a year of total commitment and hard work, but that at the end it is worth it. To ensure that you have supernumerary status throughout the course, and have total support from both nursing and medical staff and an agreed job role at the end."

"When they tell you it is hard work, believe them! Get a planned programme in the clinical area to enable you to obtain your experiences with the right support and teaching."

"Choose a masters level course. Read and memorise 'Roberton' textbook. Buy a decent computer. Send your husband away to work and the children to boarding school !"

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LIST OFABBREVIATIONS

ANNP	Advanced Neonatal Nurse Practitioner
APLS course	Advanced Paediatric Life Support course
BA (Hons)	Bachelor of Arts Honours degree
BGA	Blood Gas Analyser
BLISS	Baby Life Support Systems
BP	Blood Pressure
BPA	British Paediatric Association
B.Sc. (Hons)	Bachelor of Science Honours degree
C modules	Core modules
DGH	District General Hospital
DS	Delivery Suite
ECG	Electro-Cardiogram
ELSCS	Elective Lower Segment Caesarean Section
EmLSCS	Emergency Lower Segment Caesarean Section
ENB	English National Board for Nursing, Midwifery and Health Visiting
ENB A19	Advanced Neonatal Nurse Practitioner course
ENB A31	Enhanced Midwifery Practice course
ENB A99	Enhanced Neonatal Nurse Practice course
ENB SA19	Specialist Neonatal Nurse Practitioner programme
ENB 405	Special and Intensive Care of the Newborn course
ENB 904	Special and Intensive Care of the Newborn course
ENB 997	Teaching and Assessing in Clinical Practice for midwives
ENB 998	Teaching and Assessing in Clinical Practice for nurses
FT infant	Full Term infant
GP	General Practitioner
GPVT	General Practitioner Vocational Trainee
HD	High Dependency
IC	Intensive Care
ICU	Intensive Care Unit (adult)
ITU	Intensive Therapy Unit
IUGR	Intra-Uterine Growth Retardation
IV	Intravenous
LSCS	Lower Segment Caesarean Section
M level	Master's level
MHS	Master in Health Science
MSc	Master of Science
NICU	Neonatal Intensive Care Unit
NNP	Neonatal Nurse Practitioner
NNU	Neonatal Unit
NP	Nurse Practitioner
P modules	Pathway modules
PAM	Professions Allied to Medicine

PN	Post Natal
PNW	Post Natal Ward
PT infant	Pre-Term infant
RGN	Registered General Nurse
RM	Registered Midwife
RSCN	Registered Sick Children`s Nurse
R23	Enhancing Neonatal Nursing Practice course
SB	Serum Bilirubin
SC	Special Care
SCBU	Special Care Baby Unit
SHO	Senior House Officer
SpR	Specialist Registrar
TPN	Total Parenteral Nutrition
UAC	Umbilical Arterial Catheter
UKCC	United Kingdom Central Council for Nursing, Midwifery and Health Visiting
US	Ultra Sound
UVC	Umbilical Venous Catheter
WR	Ward Round

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THIRTY-SIX

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research HIGHLIGHTS

Evaluating the Outcomes of Advanced Neonatal Nurse Practitioner Programmes

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Abstract

The first 'Advanced Neonatal Nurse Practitioner Course' (ENB A19) was set up in 1992. Since then 156 Neonatal Nurse Practitioners (NNPs) have qualified from four ENB A19 programmes and approximately 125 are currently practising. An ENB funded exploratory study was carried out on the first three cohorts of NNPs (Redshaw and Harris, 1995). With a greater number of courses and increasing numbers of graduates from these programmes moving into the clinical area, a further evaluative study was appropriate. This study aimed to examine the different ENB A19 programmes and related courses, to investigate the way in which NNPs function and to assess the attitudes of other professional groups and parents to this relatively new role.

A range of methods was used to collect data including site visits, observation, questionnaires, interviews and diary checklists and a comparative analysis was undertaken of programme documentation.

The study demonstrates that the role of the neonatal nurse practitioner is accepted and valued within the neonatal unit and to a great extent in the wider context of specialist health care. However, the data collected show a diversity of educational programmes and NNP roles and illustrate the clear need for parity in the education underpinning the role. The implications of the study are, that in addressing the clinical and care needs of babies and their families, comparable standards are required with regard to the educational process, theoretical areas taught, methods of assessment and the core clinical skills taught and practised. Issues of effective consolidation, the development of further skills and the associated knowledge base, and the critical role of continuing education are emphasised.

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Method

The main aims of the project were

- To undertake a comparative analysis of the different programmes of education currently available for nurses wishing to become neonatal nurse practitioners (ENB A19) and to undertake a similar analysis of related neonatal nursing programmes.
- To evaluate outcomes as demonstrated in the levels of performance of practitioners undertaking different programmes.
- To map the career intentions and attrition rates of those completing or undertaking the ENB A19 or similar programmes.
- To explore the parents' perceptions of the ANNP role.

Quantitative and qualitative methodologies were reflected in the selection of methods used to address the research aims. Data were collected with the aim of employing a triangulation of methods, including self-completion questionnaires, semi-structured interviews, diary checklists and observations, in order to gain a full picture of how the role has been put into practice and to reflect the diverse accounts of individuals. Participant groups included NNP students, qualified NNPs, clinicians, junior medical staff, senior midwives and a small group of parents.

Quantitative data analysis was mainly descriptive, and where appropriate statistical tests were applied. Structured and open-ended question formats facilitated the collection of a broad range of data and the extraction of key themes enabled the development of an understanding of the perceptions of the wide spectrum of participant groups.

Main Findings

The Neonatal Nurse Practitioner Programmes (ENB A19) and Related Courses

- Different academic levels, differing qualifications, diverse assessment strategies and a variety of goals in terms of clinical practice were identified among the apparently similar ENB A19 programmes. A lack of comparability between courses is of concern from the perspective of those undertaking and organising the programmes, and those employing ENB A19 graduates.
- Considerable diversity was also found between the enhanced care modules and courses that were reviewed. However, in some respects these are similar as shown in the aims and learning outcomes, structure and content of modules and methods of assessment. There is also similarity between these and some of the modules making up the ENB A19 programmes.

The Experiences and Perceptions of Neonatal Nurse Practitioner Students

- The emphasis also differed between programmes. A total of 40% of students thought that they needed more theoretical input and there was a significant difference between students on the different programmes.
- The content of the different ENB A19 programmes varied and there were significant differences with regards to subjects in which students felt more teaching was required. This included anatomy, physiology, embryology, biochemistry, pharmacology and microbiology.
- The importance of adequate clinical teaching and supervision was recognised by students and those responsible for mentorship. However, only 53% of students felt that their educational programmes had linked practice with theory quite well or very well and 19% actually felt that the theory and practice elements of the programme were poorly linked.
- Many graduates from the programmes recognised the need for consolidation of the knowledge and skills gained. For example, on completing the programme 93% of students reported that there were technical

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areas about which they did not feel confident, most commonly this was intubation (41%), chest drain (31%) and umbilical artery catheter insertion (25%).

- The fundamental need for supernumerary status was stressed by programme leaders, students and practitioners. While most students were supernumerary during the programme, at least 1 in 10 were not.
- At the beginning of the programme more than 40% of students did not have a job description for their prospective NNP role, and the situation was little different at the end of the course.
- When asked about the aspects of the programme that students found most stressful three principal interlinking themes emerged: time pressures, conflicts of commitments and the demands of the course.

The Experiences and Perceptions of Qualified NNPs

- Most of the NNPs (85%) felt that the knowledge base gained during the ENB A19 programme was valuable. However, only 43% thought that the course prepared them well for the role and nearly two thirds (62%) felt that more teaching was needed in a clinical context.
- Nearly a third of the NNPs (32%) did not have a probationary period following completion of the course, and 41% felt that more time was needed to consolidate clinical skills. In many instances planned probationary periods were reduced in length, with this occurring most frequently in district or small district neonatal units.
- Whilst two-thirds of NNPs reported that they had since maintained the clinical skills acquired during the programme, the remainder had maintained only some skills. More than half of the NNPs working in district or small district units were less likely to have maintained these skills.
- The key aspect of the role as seen by the NNPs is providing high quality clinical care (98%). Teaching and supporting nurses and medical staff was also viewed as important (45%).
- In terms of the future, most (80%) thought that they would continue to work as an NNP and short-term plans commonly included development of the post and undertaking further education. These same goals are also reflected in their long-term plans, in addition to relocating to another unit as an NNP (23%).
- The reasons most commonly stated for not practising as NNPs include the post not meeting expectations, personal and professional support needs not being met, conflicts regarding the demands and expectations of others and a lack of recognition by other health professionals.
- The majority of NNPs view their professional relationships with neonatal nurses, doctors, and other health care professionals as positive. Many report that some relationships, although initially problematic, have improved over time as the NNPs became established.

The NNP Role in Practice

- Data collected from diary checklists demonstrate a well-defined clinical role. The most common activities are venepuncture (98% of NNPs), insertion of intravenous cannula (98%), ordering an infection screen (86%) and withdrawing blood from an arterial catheter (86%). More than half were recorded as having undertaken intubation (66%) and administering surfactant (53%). Interestingly, more than 60% of NNPs were recorded prescribing medication and/or fluids and 50% calculated and ordered TPN. As might be expected, when comparing the diary data, NNPs in larger units were found to be significantly more likely to undertake procedures and investigations.
- Teaching nurses (94%) and junior medical staff (73%) is an integral part of the NNP role. Whilst 56% report involvement in developing protocols, fewer are involved in

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research (27%) and audit (34%).

- Outside the neonatal unit attending delivery suite (92%) is common. Calls to the postnatal ward for specific baby problems (67%) and carrying out examinations of the newborn (48%) are also common, especially in small district units.

- Examination of the diary data shows that assisting with cover for medical staff occurs in a variety of ways, including: at the time of medical staff orientation, covering protected teaching time and meal breaks and shifts replacing junior medical staff on the rota.

- Direct observations showed similar findings with regards to common clinical activities. When attending delivery suite it was observed that in most instances NNPs were solely responsible for assessment and resuscitation of the newborn.

- The data from the observations agree with those from other sources about the role of the NNP. They confirm the substantial role that skilled and experienced nurses of this kind can have in caring for newborn and sick infants.

Comparisons with Junior Doctors

- Parallels with some aspects of the work of junior medical staff are evident. A common range of procedures is carried out, although junior medical staff are more likely to prescribe, take blood samples, site intravenous cannula and order x-rays.

- Shifts worked by junior medical staff are more likely to involve calls to the postnatal ward and delivery suite. NNPs are more likely to be involved in teaching.

Clinicians' Views

- There is general agreement between the view of the role that the clinicians responsible for neonatal care have and the types of clinical activities and procedures carried out by NNPs.

- There is also general agreement between clinicians' and NNPs' views of the role, for example, that NNPs should be responsible for resuscitation at delivery. The greatest discrepancies occur in relation to accepting outside referrals, planning discharges and examining newborns on the postnatal ward. It appears that clinicians are less certain about some activities involving decision-making like deciding on patient admission and discharge.

- The clinicians reported that while there may be competition for clinical experience, the NNPs support the learning of junior medical staff, by enabling protected teaching time to be effective and reducing the intensity of workload.

Senior Midwives' Views

- When asked about the role of the NNP in relation to maternity care the advantages described included better timing of emergency care and a high level of skill and experience in communicating with parents and non-medical staff. Where disadvantages were identified they relate to insufficient NNPs to run a full service, prescribing and related medico-legal problems and the effects on junior doctor training.

- The data support the view that the introduction of NNPs into the area of midwifery care has been a positive one. For example, it seems that the skills and experience that NNPs can bring to "at risk" deliveries and emergency situations are seen preferentially in comparison with those of junior medical staff.

- In the majority of maternity units NNPs are involved in teaching midwives (74%). This is equally likely to take place in formal or informal contexts. The topic which dominates teaching is resuscitation skills associated with delivery, followed by teaching on the postnatal management of newborns.

Parents' Views

- Interviews carried out with parents showed that they are not always able to distinguish

between the health care professionals caring for their infants in the neonatal unit. The safety and well-being of their infant is perceived as most important and the awareness of the identity of the individuals providing that care does not appear to be a priority.

- When parents are able to identify the NNPs they value their prior experience as nurses, their excellent communication skills and the continuity of care they provide. In addition, parents seem to recognise the importance of adequate training and expertise to undertake this role.

Conclusion

The neonatal nurse practitioner development has occurred against a backdrop of changes in nursing and medical education, advances in health technology and transformations in the organisation of health care. This evaluative study reflects the complexity of delivering care to low birth weight and sick infants and their families and the ways in which NNPs can contribute. Quality assurance issues arise in relation to the differences between the educational programmes. Differences in practice are inevitable given the diverse situations in which NNPs work, however, core skills, the maintenance of these and the continuing education of this professional group are among the topics that nurses and doctors working in neonatal care, their professional organisations and the institutions providing the educational programmes need to consider. The nature of these full-time programmes and the difficulties associated with establishing the role are evident. As was reported in the previous exploratory study (Redshaw and Harris, 1995), NNPs are a new hybrid, acting as role models for other nurses and junior medical staff. As skilled and experienced health professionals many NNPs can be recognised as potentially powerful agents of change, while continuing to be advocates for their client group.

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Redshaw, M. and Harris, A. (1995) *Breaking New Ground: An Exploratory Study of The Role And Education of The Advanced Neonatal Nurse Practitioner*. Researching Professional Education Series. ENB, London.

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Details about the Project

The research project was commissioned by the English National Board for Nursing, Midwifery and Health Visiting and supported by BLISS (Baby Life Support Systems). It was undertaken between April 1997 and March 1999 in the Department of Psychology at the University of the West of England.

The report will be of relevance to those associated with neonatal care, including neonatal nurse practitioners, clinicians, maternity and neonatal service managers and education providers. In addition, it is also of relevance in a broader context to health care professionals and educationalists in nursing and midwifery.

RESEARCH HIGHLIGHTS

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